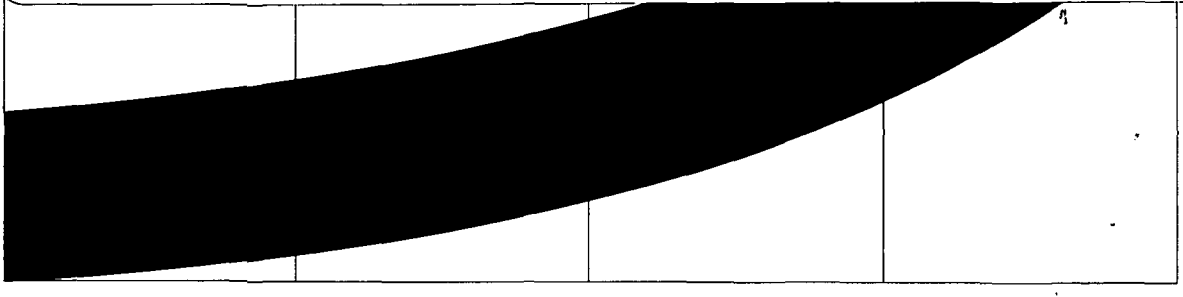
NASA Pocket Statistics

January 1983



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Foreword

Pocket Statistics is published annually for the use of NASA managers and their immediate staffs. Included is a summary of the NASA Program goals and objectives, major mission performance, USSR spaceflights, summary comparisons of the USA and USSR space records, and selected technical, financial, and manpower data.

Restriction/classification Cancelled

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Washington, DC 20546

George

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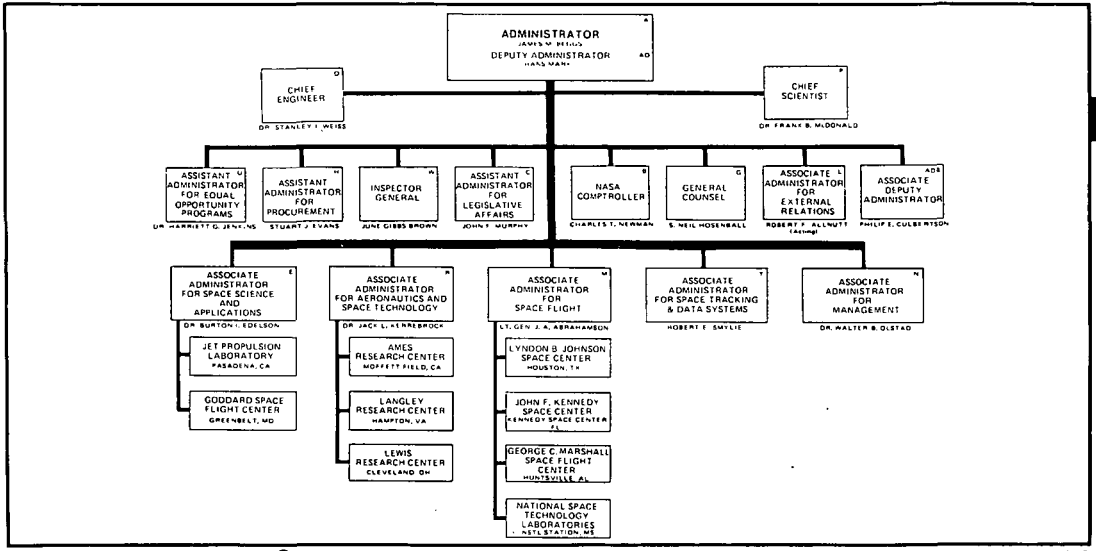
Section A

U. S. Space Policy & Program Goals

NASA ORGANIZATION



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National Aeronautics And Space Act Of 1958

The Declaration of Policy and Purpose of the National Aeronautics and Space Act is outlined in Section 102 (a) through (c) of PL 85-568 as follows:

Sec. 102. (a) The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind.

(b) The Congress declares that the general welfare and security of the United States require that adequate provision be made for aeronautical and space activities. The Congress further declares that such activities shall be the responsibility of, and shall be directed by, a civilian agency exercising control over aeronautical and space activities sponsored by the United States, except that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by, the Department of Defense; and that determination as to which such agency has responsibility for and direction of any such activity shall be made by the President in conformity with section 201 (e).

(c) The aeronautical and space activities of the United States shall be conducted so as to contribute materially to one or more of the following objectives:

(1) The expansion of human knowledge of phenomena in the atmosphere and space;

(2) The improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles;

(3) The development and operation of vehicles capable of carrying instruments, equipment, supplies, and living organisms through space;

(4) The establishment of long-range studies of the potential benefits to be gained from the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes;

(5) The preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere;

(6) The making available to agencies directly concerned with national defense of discoveries that have military value or significance, and the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries which have value or significance to that agency;

(7) Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof; and

(8) The most effective utilization of the scientific and engineering resources of the United States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities, and equipment.

International Cooperation
Scope, Objectives, and Guidlines

- SCOPE: Pursuant to the National Aeronautics and Space Act of 1958, NASA has developed an extensive program of international cooperation which has opened the entire range of its space activities to foreign participation. Cooperative programs and activities involving nations and groups of nations are established by (1) agency to agency memoranda of understanding (MOU's), (2) agency to agency letter agreements, or (3) more formal intergovernmental agreements. The relative complexity, cost, and duration of the program or project dictate in part the type of arrangement used to establish the cooperative effort. NASA's international activities demonstrate the many peaceful purposes and applications of space science and technology and provide opportunities for contribution by scientists and agencies of other countries to the tasks of increasing human understanding and use of the spatial environment. Cooperation also supports operating requirements for the launch and observation of spacecraft.

- OBJECTIVES: Cooperation by the United States (US) with other nations contributes to the US aeronautical and space research program and to broader national objectives by:

  - Stimulating scientific and technical contributions from abroad
  - Enlarging the potential for the development of the state of the art
  - Providing access to foreign areas of geographic significance tracking activities and contingency landing sites
  - Enhancing satellite experiments with foreign scientific supporting data
  - Developing cost-sharing and complementary space programs
  - Extending ties among scientific and national communities
  - Supporting US foreign relations and foreign policy

- GUIDELINES: NASA's international activities follow guidelines which recognize the interests of the US and foreign scientists, establish a basis for sound programs of mutual value, and contribute substantively to the objectives of international cooperation. These guidelines provide for:

  - Designation by each participating government of a government agency for the negotiation and supervision of joint efforts
  - Conduct of projects and activities having scientific validity and mutual interest
  - Agreement upon specific projects rather than generalized programs
  - Acceptance of financial responsibility by each participating agency for its own contributions to joint projects
  - Provision for the widest and most practicable dissemination of the results of cooperative activities

International Programs Summary

	Number Countries/ International Organizations	Number Projects/ Investigations/Actions Completed or in Progress As of January 1, 1983
COOPERATIVE ARRANGEMENTS		
Cooperative Spacecraft Projects	8	38
Experiments on NASA Missions		
Experiments with Foreign Principal Investigators	14	73
US Experiments with Foreign Co-Investigators or Team Members	11	56
US Experiments on Foreign Spacecraft	3	14
Cooperative Sounding Rocket Projects	22	1,774
Joint Development Projects	5	9
Cooperative Ground-Based Projects		
Remote Sensing	53	163
Communication Satellite	51 (27)*	19
Meteorological Satellite	44 (122)**	11
Geodynamics	43	20
Space Plasma	38	10
Atmospheric Study	14	11
Support of Manned Space Flights	21	2
Solar System Exploration	8	10
Astronomy & Astrophysics	25	11
Cooperative Balloon and Airborne Projects		
Balloon Flights	9	14
Airborne Observations	12	17
International Solar Energy Projects	24	9
Cooperative Aeronautical Projects	5	40
Scientific & Technical Information Exchanges	70	3

	Number Countries/ International Organizations	Number Projects/ Investigations/Actions Completed or in Progress As of January 1, 1983
REIMBURSABLE LAUNCHINGS		
Launchings of Non-US Spacecraft	15	95
Foreign Launchings of NASA Spacecraft	1	4
TRACKING & DATA ACQUISITION		
NASA Overseas Tracking Stations/ Facilities	20	48
NASA Funded SAO Optical & Laser Tracking Facilities	16	21
Reimbursable Tracking Arrangements		
Support Provided by NASA	5	48
Support Received by NASA	3	12
PERSONNEL EXCHANGES		
Resident Research Associateships	43	1,266
International Fellowships	21	358
Technical Training	5	972
Foreign Visitors	131	81,377

*AIDSAT Demonstrations
**APT Stations

SPACE TRANSPORTATION SYSTEMS

Goals and Objectives

- The Space Transportation System has opened a new era in space exploration and utilization for U. S. Government agencies, commercial firms, and foreign groups.
- Firm commitments exist for 28 operational Shuttle flights during 1982-85 representing over 20 different users.
- Operational traffic forecast calls for 311 flights over a 12 year period.
- Operational costs will be recovered by NASA.
- NASA payloads will account for 32% of the operational missions, DOD for 38%, and others, including commercial and foreign users, 30%.
- Two Shuttle launch sites - Kennedy Space Center (three-forths of flights) and, beginning in late 1985, Vandenberg AFB.

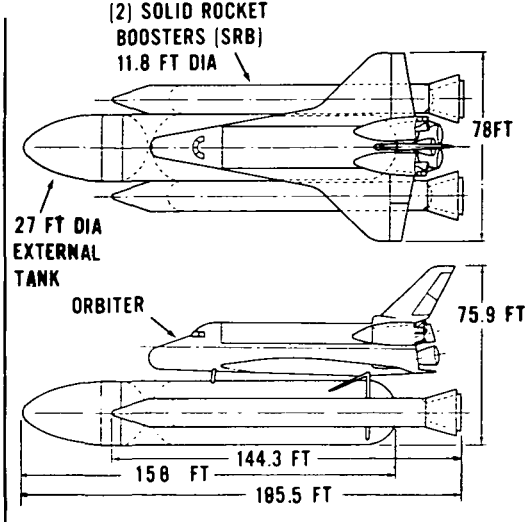
- The Office of Space Flight
- Manages ground and flight operations during pre-flight checkout, launch, on-orbit, landing, and post-flight refurbishment activities.
- Develops financial plans and pricing structures.
- Provides all necessary services to potential users.
- Manages expendable launch vehicles during transition to a fully operational fleet of orbiters.
- Upgrades design and develops system inprovements.

SPACE TRANSPORTATION SYSTEMS

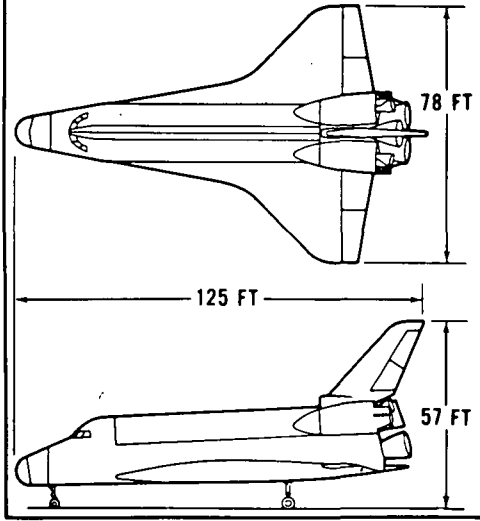
FLIGHT INTRODUCTION - The Space Shuttle is a manned reusable vehicle. The Shuttle consists of a reusable orbiter, mounted piggyback at launch on a large expendable liquid propellant tank and two recoverable and reusable solid propellant rocket boosters. At launch, the two solid rockets and the orbiter's three liquid rocket engines ignite and burn simultaneously. At an altitude of about 25 statute miles, the spent solid rockets detach and parachute into the ocean for recovery and reuse. The orbiter and its propellant tank continue ascent. After main engine cutoff, the expendable propellant tank is jettisoned and impacts into a remote ocean area. The orbiter with its crew and payload remain in orbit to carry out its mission, normally for about 4 - 7 days. When the mission is completed, the orbiter returns to Earth and lands like a glider.

MISSION AND OPERATIONAL PLANNING - The Shuttle will carry into space virtually all of the nation's civilian and military payloads as well as many international, civilian and government payloads. These include science and applications payloads for private industry, universities, and research organizations.

In addition to the first Space Shuttle Orbiter, the Columbia, three other orbiters will comprise the Space Shuttle fleet. These are the Challenger with its first flight scheduled for January 1983. The Discovery scheduled to fly in March 1984, and the Atlantis which will make its maiden flight in October 1985.



SPACE TRANSPORTATION SYSTEMS



PROGRAM MANAGEMENT

The Office of Space Flight is responsible for overall management and operations of the Space Shuttle program, including the activities and logistics of operating the system, establishmant of overall performance requirements, budget and resources requirements, program planning, and the allocation and control of resources.

JOHNSON SPACE CENTER (JSC) JSC is responsible for the development, production, and delivery of the Space Shuttle orbiters, the day-to-day management of the program, establishing detailed performance requirements, overall systems integration, resources utilization and coordination of requirements, program scheduling, and configuration control.

KENNEDY SPACE CENTER (KSC) KSC is responsible for design of launch and recovery facilities, and serves as the launch and landing site for Space Shuttle flights requiring launches in an easterly direction.

MARSHALL SPACE FLIGHT CENTER (MSFC) MSFC is responsible for the development, production, and delivery of the orbiter main engines, the solid rocket boosters, and the liquid hydrogen-oxygen external propellant tanks.

CHARACTERISTICS

- Orbiter and Booster launched vertically
- Orbiter - Reusable Delta winged manned vehicle
- Size - Same as a DC-9
- Crew capacity - 7 : Commander, pilot, mission specialists, and payload specialists.
- Cargo Compartment - 15 ft dia, 60 ft long (carry loads up to 65,000 lbs)
- Launch and Reentry Speed - no more than 3 G

USES

- Launch most unmanned spacecraft
- Study space near and far
- Deploy scientific & applications satellites of all types
- Service and repair satellites
- Retrieve satellites from Earth orbit
- International cooperation
- Rescue missions
- Will replace most of the expendable launch vehicles currently used

Space Science And Applications Goals

LIFE SCIENCES

To assume adequate medical care and life support to spacecraft crews; to devise preventive or therapeutic countermeasures for deleterious physiological effects of space flight; to characterize the effects of gravity variations on organisms -- especially man; to characterize the role of life in processes that affect the terrestrial environment; and to determine how life began and how it may be distributed in the universe.

ASTROPHYSICS

To use access to space to carry out measurements of celestial objects at wave lengths and particle energies which cannot be measured from the ground and to conduct basic experiments making use of the unique space environment; to understand the generation of energy in the Sun, its transformation into different forms and transport into interplanetary space; to understand the Sun as a star.

EARTH AND PLANETARY EXPLORATION

To further our understanding of the origin and evolution of the solar system; to further our understanding of the Earth as a planet; to develop the research tools for the management of earth resources; and to initiate the survey of near earth resources.

SPACELAB MISSION

To plan, implement, and conduct Spacelab and Orbiter-attached missions for NASA programs; to integrate and implement multidisciplinary OSSA Space Platform and Space Station missions; to interface with STS to reduce the cost and increase the flexibility of STS - attached missions.

EARTH AND ITS ENVIRONMENT

To use space observation to further our understanding of the physical, chemical, and biological processes which govern the solid Earth, its land masses, oceans, and atmospheres, and its life forms.

COMMUNICATIONS

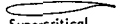
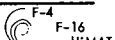
To develop high risk advanced communications technology useable in multiple frequency bands to support a wide range of future communications systems for NASA, other governmental agencies, and industry to insure continued U.S. preeminence in satellite communications.

MATERIALS PROCESSING

To understand gravitational effects on materials processing; applying this knowledge to enhance materials processing on Earth; and, exploration of the space environment to produce unique, low-volume, high-value materials.

AERONAUTICS RESEARCH AND TECHNOLOGY GOALS

AERONAUTICAL TECHNOLOGY PROGRAMS

PROPULSION	 Turbofans	 Turboprops	Source Noise & Pollution	Power Transmission	Alternative Fuels
AERODYNAMICS	 Supercritical Airfoils	Drag Reduction	Lift Augmentation	 Tilt Rotor	 F-4 F-16 HiMAT Maneuverability
STRUCTURES	Composite Materials	Crash-Worthy Structures 	High-Temperature Materials	Computer-Aided Design 	
ELECTRONICS	Guidance & Navigation  Displays	Digital Fly-by-Wire	Terminal Operations	Integrated Controls	All-Weather Day-Night Operations	Active Controls

AERONAUTICAL TECHNOLOGY OBJECTIVES

	TECHNOLOGY FOR:	TIME	EFFECT
ENERGY	50% FUEL REDUCTION	1990	100 MILLION BBL/YR SAVINGS
POLLUTION	90% NO_x REDUCTION	1985	MEETS ALL CLEAN AIR RECOMMENDATIONS
PERFORMANCE	15% EFFICIENCY INCREASE	1990	REDUCED TRANSPORTATION COST
NOISE	MAXIMUM PRACTICAL IMPROVEMENT	CONTINUING	ELIMINATE ENVIRONMENTAL RESTRAINTS
SAFETY	MAXIMUM PRACTICAL IMPROVEMENT	CONTINUING	SAVE LIVES AND PROPERTY

Section B

Space Flight Activity

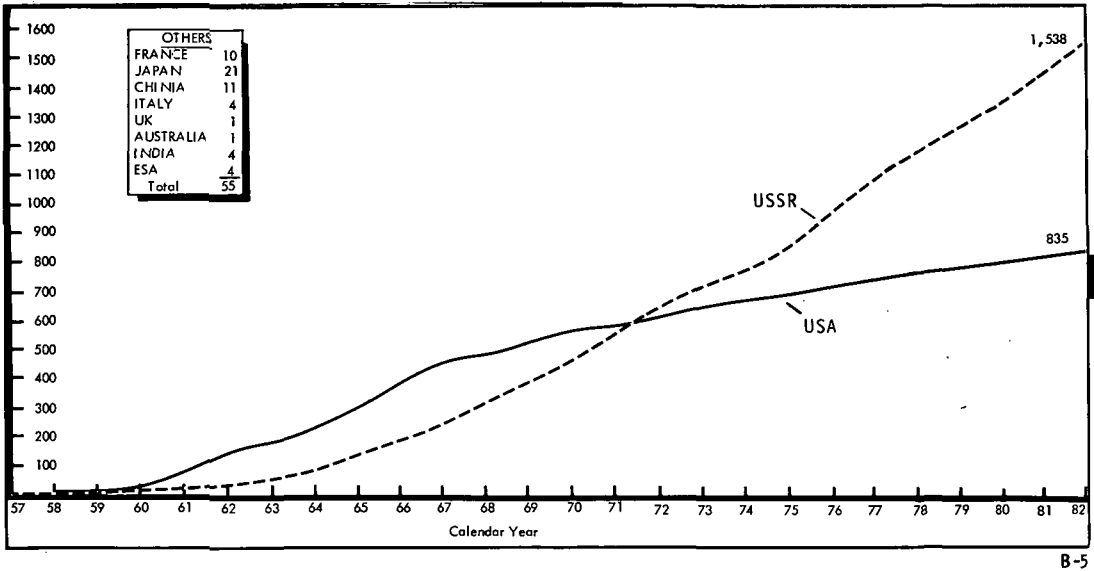
Major Space "Firsts"

LAUNCH DATE	MISSION	EVENT DESCRIPTION	DATE	US	USSR
4 Oct 57	Sputnik 1	Man Made Earth Satellite	4 Oct 57		X
3 Nov 57	Sputnik 2	Biosatellite	3 Nov 57		X
1 Feb 58	Explorer	Discovered Radiation Belt (Van Allen)	1 Feb 58	X	
2 Jan 59	Luna 1	Escaped Earth's Gravity	2 Jan 59		X
17 Feb 59	Vanguard II	Earth Photo from Satellite	17 Feb 59	X	
12 Sep 59	Luna 2	Lunar Impact	14 Sep 59		X
4 Oct 59	Luna 3	Lunar Picture (Dark Side)	7 Oct 59		X
1 Apr 60	TIROS 1	Weather Satellite	1 Apr 60	X	
13 Apr 60	Transit 1B	Navigation Satellite	13 Apr 60	X	
12 Aug 60	ECHO-1	Communications Satellite	12 Aug 60	X	
19 Aug 60	Sputnik 5	Orbited Animals	20 Aug 60		X
12 Apr 61	Vostok 1	Manned Orbital Flight	12 Apr 61		X
26 Aug 62	Mariner 2	Interplanetary Probe - Venus Flyby	14 Dec 62	X	
1 Nov 62	Mars 1	Mars Flyby	Jun 63		X
16 Jun 63	Vostok 6	Female in Orbit	16 Jun 63		X
28 Nov 64	Mariner 4	Mars Flyby Pictures	15 Jul 65	X	
16 Nov 65	Venera 3	Venus Impact	1 Mar 66		X
31 Jan 66	Luna 9	Lunar Soft Landing	3 Feb 66		X
16 Mar 66	Gemini 8	Manned Docking of Two Craft	16 Mar 66	X	
31 Mar 66	Lunar 10	Lunar Orbiter	3 Apr 66		X
17 Apr 67	Surveyor 3	Lunar Surface Sampler	20 Apr 67	X	
14 Sep 68	Zond 5	Circumlunar of Live Animals	21 Sep 68		X
21 Dec 68	Apollo 8	Manned Lunar Orbit	24 Dec 68	X	
16 Jul 69	Apollo 11	Manned Lunar Landing	20 Jul 69	X	
16 Jul 69	Apollo 11	Lunar Soil Samples Returned	24 Jul 69	X	
17 Aug 70	Venera 7	Venus Soft Landing	15 Dec 70		X
19 May 71	Mars 2	Mars Impact	27 Nov 71		X
28 May 71	Mars 3	Mars Soft Landing	2 Dec 71		X
30 May 71	Mariner 9	Mars Orbit	13 Nov 71	X	
3 Mar 72	Pioneer 10	Jupiter Flyby	3 Dec 73	X	
3 Nov 73	Mariner 10	Mercury Flyby	16 Mar 74	X	
8 Jun 75	Venus 9	Venus Orbit	22 Oct 75		X
15 Jul 75	Apollo/Soyuz	Manned International Co-operative Mission - Rendezvous, Docking, and Transfer of Crews	17 Jul 75	X	X
20 Aug 75	Viking 1	Multiday Operation of Spacecraft on Surface of Another Planet	20 Jul 76	X	
9 Sep 75	Viking 2		3 Sep 76	X	
	Vikings 1 & 2	In-situ analysis of surface material and biological experiments conducted on another planet (Mars)	20 Jul 76	X	
6 Apr 73	Pioneer 11	Saturn Flyby	Sep 79	X	
5 Sep 77	Voyager 1	High resolution photographs & measurements of Jupiter & Saturn	Mar 79	X	
20 Aug 77	Voyager 2		Nov 80	X	
12 Apr 81	STS-1	Space Shuttle Flight	12 Apr 81	X	
12 Nov 81	STS-2	Re-use of Launch Vehicle	12 Nov 81	X	

Summary Of USA & USSR Announced Launches

	Calendar Year																								
	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	Totals
NUMBER OF SUCCESSFUL LAUNCHES																											
NASA	0	0	8	10	16	20	11	24	23	29	18	12	13	7	7	9	9	3	11	2	3	8	3	1	4	4	255
NASA/USA Gov't	0	0	0	0	0	0	2	1	1	4	3	3	1	1	1	2	2	1	2	3	2	2	3	3	4	0	41
NASA/Commercial	0	0	0	0	0	1	1	0	1	1	3	1	2	3	2	2	1	3	3	7	1	3	2	2	5	6	50
NASA/International	0	0	0	0	0	2	0	2	1	0	2	3	4	2	6	5	1	8	3	4	7	7	1	0	0	2	60
TOTAL NASA	0	0	8	10	16	23	14	27	26	34	26	19	20	13	16	18	13	15	19	16	13	20	9	6	13	12	406
Air Force	0	1	5	8	16	31	24	31	34	39	27	25	18	16	17	13	10	8	9	11	10	13	7	6	5	6	390
Navy	0	1	0	2	3	3	4	4	5	4	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	33
Army	0	3	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
TOTAL DOD	0	5	5	11	19	34	28	35	40	43	32	26	19	17	17	13	10	8	9	11	10	13	7	6	5	6	429
TOTAL USA	0	5	13	21	35	57	42	62	66	77	58	45	39	30	33	31	23	23	28	27	23	33	16	12	18	18	835
TOTAL USSR	2	1	3	3	6	20	17	30	48	44	66	74	70	81	83	74	86	81	89	99	98	88	87	89	98	101	1538
NUMBER OF UNSUCCESSFUL LAUNCHES (Not included in numbers above)																											
NASA	0	4	6	7	8	4	1	3	4	2	1	3	1	1	1	0	0	1	1	0	0	0	0	0	0	0	48
NASA/USA Gov't	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	3
NASA/Commercial	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	4
NASA/International	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	4
NASA Unsuccessful	0	4	6	7	8	4	1	3	4	2	2	4	2	1	2	0	1	2	2	0	3	0	0	1	0	0	59
DOD Unsuccessful	1	8	4	8	7	6	8	5	4	3	2	1	0	0	2	2	0	0	1	0	0	1	0	2	1	0	66

Successful USA & USSR Announced Launches



Summary Of USA & USSR Announced Payloads

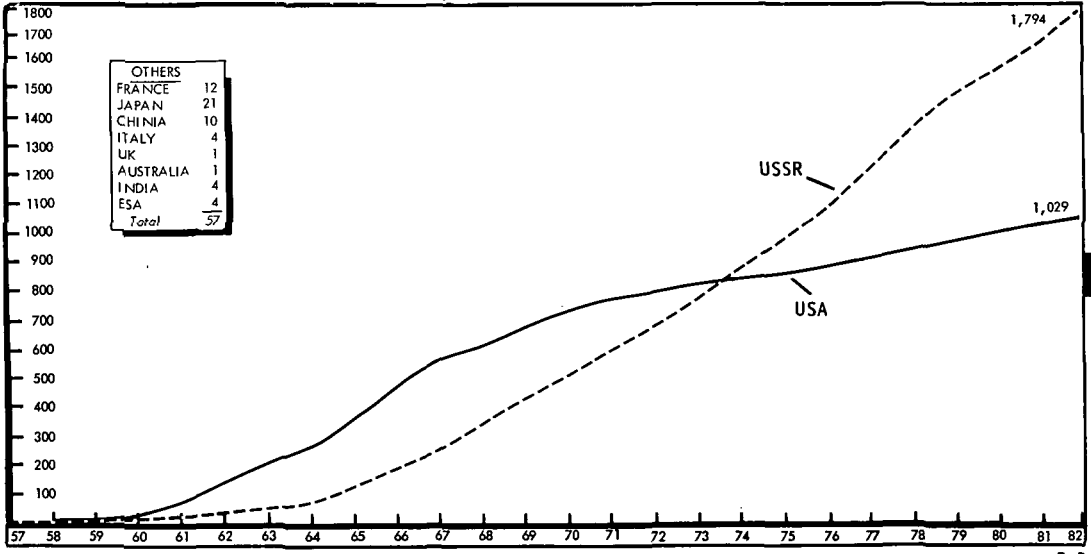
	Calendar Year						NUMBER OF SUCCESSFUL MISSIONS OR PAYLOADS																		
	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	Total
NASA	0	0	8	9	15	17	10	23	22	19	17	13	11	5	7	9	8	3	11	2	3	8	3	1	4	4	232
NASA/USA Gov't	0	0	0	0	0	0	2	1	1	4	3	3	1	1	1	2	2	1	2	3	2	2	3	3	4	1	42
NASA/Commercial	0	0	0	0	0	1	1	0	1	0	3	1	2	2	2	2	1	3	3	7	1	3	1	2	5	7	48
NASA/International	0	0	0	0	0	2	0	2	2	0	2	3	4	2	6	5	1	9	3	4	8	7	1	0	0	2	63
TOTAL NASA	0	0	8	9	15	20	13	26	26	23	25	20	18	10	16	18	12	16	19	16	14	20	8	6	13	14	385
Air Force	0	1	5	8	18	33	39	39	49	63	48	42	29	20	31	17	12	7	11	18	14	14	9	9	5	6	547
Navy	0	1	0	3	7	7	10	11	15	4	12	1	10	1	0	0	0	1	0	0	0	0	0	0	0	0	83
Army	0	3	0	1	0	0	0	0	4	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	14
TOTAL DOD	0	5	5	12	25	40	49	50	68	70	61	43	40	22	31	17	12	8	11	18	14	14	9	9	5	6	a/ 644
TOTAL USA	0	5	13	21	40	60	62	76	94	93	86	63	58	32	47	35	24	24	30	34	28	34	17	15	18	20	1029
TOTAL USSR	2	1	3	3	6	20	17	35	64	44	66	74	70	88	97	89	107	95	111	121	105	120	102	110	125	119	1794

NUMBER OF UNSUCCESSFUL MISSIONS OR PAYLOADS (Not included in numbers above)

NASA	0	4	6	8	9	7	2	5	5	7	2	3	3	3	1	0	0	1	1	0	0	0	0	0	0	0	67
NASA/USA Gov't	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	3
NASA Commercial	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	1	0	1	0	1	0	0	0	7
NASA/International	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	5
NASA Unsuccessful	0	4	6	8	9	7	2	5	5	8	3	4	4	4	2	0	1	2	2	0	3	0	1	1	0	1	82
DOD Unsuccessful	1	8	4	8	7	6	8	5	4	3	2	1	0	0	2	2	0	0	1	0	0	2	0	4	1	0	69

a/ Subject to change as DOD payloads become unclassified

Successful USA & USSR Announced Payloads



Summary Of United States Manned Space Flight

MISSION	NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS
		HRS., MINS.	
MERCURY REDSTONE:			
MR-3 } Suborbital	1	0:15	0:15
MR-4 } Suborbital	1	0:16	0:16
Total 2	2	0:31	0:31
MERCURY ATLAS:			
MA-6	1	4:55	4:55
MA-7	1	4:56	4:56
MA-8	1	9:13	9:13
MA-9	1	34:20	34:20
Total 4	4	53:24	53:24
GEMINI TITAN:			
GT-3	2	4:53	9:46
GT-4	2	97:56	195:52
GT-5	2	190:55	381:50
GT-7	2	330:35	661:10
GT-6A	2	25:51	51:42
GT-8	2	10:41	21:22
GT-9A	2	72:21	144:42
GT-10	2	70:47	141:34
GT-11	2	71:17	142:34
GT-12	2	94:35	189:10
Total 10	20	969:51	1939:42
APOLLO SATURN I:			
7	3	260:09	780:27
Total 1	3	260:09	780:27

MISSION	NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS
		HRS., MINS.	
APOLLO SATURN V:			
8	3	147:01	441:03
9	3	241:01	723:03
10	3	192:03	576:09
11	3	195:19	585:57
12	3	244:36	733:48
13	3	142:55	428:45
14	3	216:02	648:06
15	3	295:12	885:36
16	3	265:51	797:33
17	3	301:52	905:36
Total 10	30	2241:52	6725:36
SKYLAB SL-1 SATURN V:			
SL-2 - Saturn IB	3	672:50	2018:30
SL-3 - Saturn IB	3	1427:09	4281:27
SL-4 - Saturn IB	3	2017:16	6051:48
Total 3	9	4117:15	12,351:45
APOLLO SATURN IB:			
ASTP	3	217:28	652:24
Total 1	3	217:28	652:24

Summary Of United States Manned Space Flight

MISSION (Cont'd)	NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS
SPACE TRANS SYSTEM		HRS., MINS.	
STS-1 (Columbia)	2	54:21	108:42
STS-2 (Columbia)	2	54:13	108:26
STS-3 (Columbia)	2	192:05	384:10
STS-4 (Columbia)	2	169:10	338:20
STS-5 (Columbia)	4	122:15	489:00
Total 5	12	592:04	1428:38

MISSION/TOTALS		NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS
	SUMMARY		HRS., MINS.	
MERCURY REDSTONE	2	2	0:31	0:31
MERCURY ATLAS	4	4	53:24	53:24
GEMINI TITAN	10	20	969:51	1939:42
APOLLO SATURN 1	1	3	260:09	780:27
APOLLO SATURN V	10	30	2241:52	6725:36
SKYLAB	3	9	4117:15	12351:45
ASTP	1	3	217:28	652:24
STS	5	12	592:04	1428:38
USA TOTAL	38	83	8,452:34	23,932:27

Summary Of Soviet Union Manned Space Flight

MISSION	NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS
VOSTOK:			HRS., MINS.
1	1	1:48	1:48
2	1	25:18	25:18
3	1	94:25	94:25
4	1	70:59	70:59
5	1	119:06	119:06
6	1	70:50	70:50
Total 6	6	382:26	382:26
VOSKHOD:			
1	3	24:17	72:51
2	2	26:02	52:04
Total 2	5	50:19	124:55
SOYUZ:			
1	1	26:37	26:37
3	1	94:51	94:51
*4	1	71:23	71:23
*5	2		95:38
*5	1	72:56	72:56
6	2	118:42	237:24
7	3	118:41	356:03
8	2	118:50	237:40
9	2	424:59	849:58
10	3	47:46	143:18
11	3	570:22	1711:06
12	2	47:16	94:32
13	2	188:55	377:50
14	2	377:30	755:00
15	2	48:12	96:24

MISSION (Cont'd)	NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS
SOYUZ (Cont'd):			HRS., MINS.
16	2	142:24	284:48
17	2	709:20	1418:40
Aborted Before Orbit	2	:20	:40
18	2	1511:20	3022:40
19 (ASTP)	2	142:31	285:02
21	2	1182:24	2364:48
22	2	189:54	379:48
23	2	48:06	96:12
24	2	425:23	850:46
25	2	48:46	97:32
*26	2	2314:00	4628:00
*27	2	142:59	285:58
28	2	190:17	380:34
*29	2	3350:48	6701:36
30	2	190:04	380:08
*31	2	188:49	377:38
*32	2	4200:36	8401:12
33	2	47:01	94:02
*35	2	4436:12	8872:24
*36	2	188:46	377:32
T-2	2	94:41	189:22
*37	2	188:42	377:24
*38	2	188:43	377:26
T-3	3	307:08	921:24
T-4	2	1074:38	2149:16
39	2	188:43	377:26
40	2	188:41	377:22

*Crews exchanged spacecraft for re-entry

Summary Of Soviet Union Manned Space Flight

MISSION (Cont'd)	NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS
		HRS., MINS.	
T-5	2	5072:05	10144:10
T-6	3	189:51	569:33
T-7	3	189:52	569:36
Total 44	92	29,660:00	60,573:39

MISSION/TOTALS		NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS
		SUMMARY	HRS., MINS.	
VOSTOK	6	6	382:26	382:26
VOSKHOD	2	5	50:19	124:55
SOYUZ	44	92	29,660:00	60,573:39
USSR TOTAL	52	103	30,092:45	61,081:00

NASA Record Of Performance (Scout & Larger Vehicles)

VEHICLE	TOTAL	SUCCESSES	% SUCCESS
Space Shuttle	5	5	100
Mercury (Blue) Scout	1	0	0
Juno II	10	4	40
Jupiter C	1	0	0 1/
Thor-Able	5	3	60
Vanguard	4	1	25
Atlas-Able	3	0	0
Atlas 2/	11	9	82
Thor	2	2	100
Little Joe	7	7	100
Little Joe II	5	4	80
Scout X	1	0	0
Scout	76*	69	91
Redstone	5	5	100
Thor-Delta (Incl. TAD)	165	153	93
Thor-Agena (Incl. TAT)	13	12	92
Atlas-Agena & F	31	24	77
Atlas-Centaur	60	52	87
Saturn I	10	10	100
Titan II	12	12	100
Titan III C	1	1	100
Titan III E Centaur	7	6	86
Atlas X-259	2	2	100
Gemini (A-A Target)	6	4	67
Saturn IB	9	9	100
Saturn V	13	12	92
TOTAL	465	406	87

Includes all launches (Little Joes, Scouts, and larger), funded by NASA or for which NASA has vehicle performance responsibility, including vehicle development missions.
*Excludes 26 DOD Scouts

1981 TOTAL VEHICLE LAUNCH RECORD

	Attempts	Successes	% Successful
Space Shuttle	2	2	100
Atlas Centaur	4	4	100
Atlas-F	1	1	100
Delta	5	5	100
Scout	1	1	100
TOTAL	13	13	100

1982 TOTAL VEHICLE LAUNCH RECORD

Space Shuttle	3	3	100
Atlas Centaur	2	2	100
Delta	7	7	100
TOTAL	12	12	100

1/ Does not include three successful launches of Jupiter C made prior to creation of NASA by projects transferred to NASA in October 1958.
2/ Includes Atlas vehicle for the Gemini ATDA.

NASA Major Launch Record

MISSION		DATE (GMT)		PERIOD	ORBITAL PARAMETERS			WEIGHT	MISSION/REMARKS
Name/Desig.	Vehicle	Launch	Down	(mins.)	Apogee (km)	Perigee	Incl.°	(kg)	(All launches from ETR, unless otherwise noted.)
RCA-IV / 004	Delta	16 Jan		GEOSYNCHRONOUS ORBIT				1082	RCA Communications Satellite - Reimbursable
Westar-IV / 014	Delta	25 Feb		GEOSYNCHRONOUS ORBIT				1072	Space Communications Company Satellite - Reimbursable
Intelsat V-D /017	A/Centaur	4 Mar		GEOSYNCHRONOUS ORBIT				1928	Comsat Communications Satellite - Reimbursable
STS-3 / 022	Shuttle (Columbia)	22 Mar	30 Mar	89.4	247	239	38.0	OSS-1 3720 MLR 61	Third orbital flight-Commander, Jack R. Lousma, Pilot, Charles G. Fullerton - Two major payloads - OSS-1 conducted scientific experiments and the Monodisperse Latex Reactor (MLR) conducted materials processing research. Landed at White Sands - Mission Duration 192 hrs. 5 min.
Insat 1-A / 031	Delta	10 Apr		GEOSYNCHRONOUS ORBIT				1152	Indian Communications Satellite - Reimbursable
Westar-V / 058	Delta	8 Jun		GEOSYNCHRONOUS ORBIT				1105	Space Communications Company Satellite - Reimbursable
STS-4 / 065	Shuttle (Columbia)	27 Jun	4 Jul	90.6	307	297	28.5	DOD Classified NOSL 15	Fourth orbital flight-Commander, Thomas K. Mattingly, Pilot, Henry W. Hartsfield - Two major payloads - Classified DODand a NASA Nighttime/Daytime Optical Survey of Thunderstorm Lightning Payload - Mission Duration - 169 hrs. 10 min.
Landsat D / 072	Delta	16 Jul		95.1	695	678	98.3	1942	NASA Spacecraft to study Earth resources - WTR
Telesat G / 082	Delta	26 Aug		GEOSYNCHRONOUS ORBIT				1238	Canadain Communications Satellite - Reimbursable
Intelsat V-D/097	A/Centaur	28 Sep		GEOSYNCHRONOUS ORBIT				1928	Comsat Communications Satellite - Reimbursable
RCA-E / 105	Delta	28 Oct		GEOSYNCHRONOUS ORBIT				1024	RCA Communications Satellite - Reimbursable
STS-5 / 110	Shuttle Columbia)	11 Nov	16 Nov	90.0	161	160	28.5	SBS-1058 Telesat-1238	Commander, Vance Brand, Pilot, Robert Overmyer, Mission Spec Joseph Allen & William Lenoir - Two major payloads - SBS-C & the Telesat E - Mission Duration 122 hrs. 15 min.

Total NASA Performance By Major Program Activity

(Excludes Reimbursables, Cooperatives and Small Piggybacks)

PROGRAM	VEHICLE SUCCESS/ ATTEMPTS	VEHICLE % SUCCESS	MISSION SUCCESS/ ATTEMPTS	MISSION % SUCCESS
Mercury	20/23	87%	18/23	78%
Gemini *	17/19	89%	10/14	71%
Apollo (Includes ASTP)	28/30	93%	27/30	90%
Skylab	4/4	100%	3/3	100%
STS	5/5	100%	5/5	100%
MANNED SPACE TOTAL	76/83	92%	65/77	84%
Geoprobes	4/4	100%	4/4	100%
Orbital Flights	64/79	81%	63/81	78%
Physics and Astronomy	68/83	82%	67/85	79%
Lunar Probes	19/28	68%	14/28	50%
Planetary and Deep Space	20/24	83%	20/24	83%
Lunar and Planetary	39/52	75%	34/52	65%
Bioscience	4/4	100%	2/4	50%
Launch Vehicle Development	8/13	62%	8/13	62%
SPACE SCIENCE TOTAL	119/152	78%	111/154	72%
Communications	13/16	81%	11/16	69%
Earth Observations	25/26	96%	25/26	96%
Special Applications	6/6	100%	6/6	100%
Applications Explorers	3/3	100%	3/3	100%
APPLICATIONS TOTAL	47/51	92%	45/51	88%
Suborbital	11/13	85%	10/13	77%
Orbital	7/9	78%	6/9	67%
SPACE TECHNOLOGY TOTAL	18/22	82%	16/22	73%
TOTAL NASA MISSIONS	258/306	84%	235/302	78%

*Does not include target vehicles

NASA REIMBURSABLE & COOPERATIVE LAUNCHES

(1958 - 1982)

COMMERCIAL

COMSAT	39
AT&T	2
WESTERN UNION	5
RCA	6
SBS	3
TOTAL (ALL REIMBURSABLE)	55

INTERNATIONAL

REIMBURSABLE LAUNCHES	37
COOPERATIVE LAUNCHES	28
TOTAL	65

U.S. GOVERNMENT

DOD	16
AEC	2
NRL	3
ESSA	9
NOAA	15
TOTAL (INCLUDES 3 COOPERATIVES)	45

SUMMARY

COMMERCIAL	55
INTERNATIONAL	65
U.S. GOVERNMENT	45
TOTAL (134 REIMBURSABLES & 31 COOPERATIVES)	165

NASA/USA Government Cooperative & Reimbursable Launches

AGENCY/SPACECRAFT	LAUNCH VEHICLE	LAUNCH DATE (GMT)
Atomic Energy Commission		
RFD-1 (Re-entry Test)	Scout	22 May 63
RFD-2 (Re-entry Test)	Scout	9 Oct 64
Naval Research Lab		
*Explorer XXX (Solar Physics)	Scout	19 Nov 65
*Explorer XXXVII (Solar Physics)	Scout	5 Mar 68
*Explorer 44 (Solar Physics)	Scout	8 Jul 71
Department of Defense		
CRL (USAF)(Geophysics)	Scout	28 Jun 63
OV-3 (USAF)(Radiation Research)	Scout	9 Jun 66
TRANSIT (USN)	Scout	2 Sep 72
TRANSIT (USN)	Scout	29 Oct 73
TRANSIT (USN)	Scout	12 Oct 75
USAF Test (Comm. Research)	Scout	22 May 76
TRANSIT (USN)	Scout	1 Sep 76
TRANSAT (USN)	Scout	28 Oct 77
FLTSATCOM A	A-Centaur	9 Feb 78
SCATHA	Delta	30 Jan 79
FLTSATCOM B	A-Centaur	4 May 79
FLTSATCOM C	A-Centaur	17 Jan 80
FLTSATCOM D	A-Centaur	31 Oct 80
NOVA-1 (USN)	Scout	15 May 81
FLTSATCOM E	A-Centaur	6 Aug 81
DOD 82-1	STS-4	27 Jun 82

AGENCY/SPACECRAFT	LAUNCH VEHICLE	LAUNCH DATE (GMT)
Environmental Science Services Agency		
ESSA I (OT-3)	Thor-Delta	3 Feb 66
ESSA II (OT-2)	Thor-Delta	28 Feb 66
ESSA III (TOS-A)	Thor-Delta	2 Oct 66
ESSA IV (TOS-B)	Thor-Delta	26 Jan 67
ESSA V (TOS-C)	Thor-Delta	20 Apr 67
ESSA VI (TOS-D)	Thor-Delta	10 Nov 67
ESSA VII (TOS-E)	Thor-Delta	16 Aug 68
ESSA VIII (TOS-F)	Thor-Delta	15 Dec 68
ESSA IX (TOS-G)	Thor-Delta	26 Feb 69
National Oceanic & Atmospheric Agency		
ITOS-A (NOAA-1)	Thor-Delta	11 Dec 70
ITOS-B (NOAA)	Thor-Delta 1/	21 Oct 71
ITOS-D (NOAA-2)	Thor-Delta	15 Oct 72
ITOS-E (NOAA)	Thor-Delta 1/	16 Jul 73
ITOS-F (NOAA-3)	Thor-Delta	6 Nov 73
ITOS-G (NOAA-4)	Delta	15 Nov 74
SMS-C (GOES-1)(NOAA)	Delta	16 Oct 75
ITOS-H (NOAA-5)	Delta	29 Jul 76
GOES-2 (NOAA)	Delta	16 Jun 77
GOES-3 (NOAA)	Delta	16 Jun 78
NOAA-6	Atlas-F	27 Jun 79
NOAA-7	Atlas-F 1/	29 May 80
GOES-4 (NOAA)	Delta	9 Sep 80
GOES-5 (NOAA)	Delta	22 May 81
NOAA-C	Atlas-F	23 Jun 81

Total Reimbursables..... 42
Total Cooperatives..... 3
Total Launches..... 45
Total Successful..... 42

*Cooperatives
1/ Vehicle Failure

NASA/USA Commercial Reimbursable Launches

SPACECRAFT	VEHICLE	DATE (GMT)
AT&T		
Telstar	Thor-Delta	10 Jul 62
Telstar	Thor-Delta	7 May 63
COMSAT		
Intelsat I F-1	Delta	6 Apr 65
Intelsat II F-1 2/	Delta	26 Oct 66
Intelsat II F-2	Delta	11 Jan 67
Intelsat II F-3	Delta	23 Mar 67
Intelsat II F-4	Delta	28 Sep 67
Intelsat III F-1	Delta 1/	19 Sep 68
Intelsat III F-2	Delta	19 Dec 68
Intelsat III F-3	Delta	6 Feb 69
Intelsat III F-4	Delta	22 May 69
Intelsat III F-5	Delta 1/	26 Jul 69
Intelsat III F-6	Delta	15 Jan 70
Intelsat III F-7	Delta	23 Apr 70
Intelsat III F-8 2/	Delta	23 Jul 70
Intelsat IV F-2	A-Centaur	25 Jan 71
Intelsat IV F-3	A-Centaur	19 Dec 71
Intelsat IV F-4	A-Centaur	22 Jan 72
Intelsat IV F-5	A-Centaur	13 Jun 72
Intelsat IV F-7	A-Centaur	23 Aug 73
Intelsat IV F-8	A-Centaur	21 Nov 74
Intelsat IV F-6	A-Centaur 1/	20 Feb 75
Intelsat IV F-1	A-Centaur	22 May 75
Intelsat IVA F-1	A-Centaur	25 Sep 75
Intelsat IVA F-2	A-Centaur	29 Jan 76
Comstar-A	Delta	22 Apr 76
Comstar-B	Delta	22 Jul 76
Marisat-A	Delta	19 Feb 76
Marisat-B	Delta	9 Jun 76
Marisat-C	Delta	14 Oct 76
Intelsat IVA F-4	A-Centaur	26 May 77
Intelsat IVA F-5	A-Centaur 1/	29 Sep 77
Intelsat IVA F-3	A-Centaur	7 Jan 78
Intelsat IVA F-6	A-Centaur	31 Mar 78
Comstar D-3	A-Centaur	29 Jun 78
Intelsat V-A	A-Centaur	6 Dec 80
Comstar-D	A-Centaur	21 Feb 81
Intelsat V-B	A-Centaur	23 May 81
Intelsat V-C	A-Centaur	15 Dec 81
Intelsat V-D	A-Centaur	16 Jul 82
Intelsat V-E	A-Centaur	28 Sep 82
Western Union		
Westar A	Delta	13 Apr 74
Westar B	Delta	10 Oct 74
Westar C	Delta	9 Aug 79
Westar IV	Delta	25 Feb 82
Westar V	Delta	8 Jun 82
RCA		
RCA-A	Delta	12 Dec 75
RCA-B	Delta	26 Mar 76
RCA-C 2/	Delta	6 Dec 79
RCA-D	Delta	19 Nov 81
RCA-IV	Delta	16 Jun 82
RCA-E	Delta	28 Oct 82
SBS		
SBS-A	Delta	15 Nov 80
SBS-B	Delta	24 Sep 81
SBS-C	STS-5	11 Nov 82

1/ VEHICLE FAILURE
2/ SPACECRAFT FAILURE

Total Launches - - - - - 55
Total Successful Launches - 51
Total Successful Payloads - 48

NASA/International Cooperative & Reimbursable Launches

(SCOUT AND LARGER VEHICLES)

YEAR	SPACECRAFT TITLE	LAUNCH VEHICLE	LAUNCH DATE(GMT)
1962	ARIEL-I (United Kingdom)	DELTA	26 Apr
	ALOUETTE -I (Canada)	THOR-AGENA-B	29 Sep
1964	ARIEL-II (United Kingdom)	SCOUT	27 Mar
	SAN MARCO-I (Italy)	SCOUT	15 Dec
1965	ALOUETTE - II (Canada) (Piggyback on Explorer XXXI)	NA	29 Nov
	FRENCH IA (France)	SCOUT	6 Dec
1967	SAN MARCO 2 (Italy)	SCOUT	26 Apr
	ARIEL-III (United Kingdom)	SCOUT	5 May
	ESRO-IIA	SCOUT 1/	29 May
1968	ESRO-IIB (IRIS)	SCOUT	17 May
	ESRO-IA (Aurorae)	SCOUT	3 Oct
	*ESRO (HEOS-A)	DELTA	5 Dec
1969	ISIS-I (Canada)	DELTA	30 Jan
	*ESRO-IB (Boreas)	SCOUT	1 Oct
	AZUR-I (German) (GRS-A)	SCOUT	8 Nov
	SKYNET-I (United Kingdom)	DELTA	22 Nov
1970	*SKYNET-2 (United Kingdom)	DELTA	19 Aug
	*NATO-A (NATOSAT-I)	DELTA	20 Mar
1971	*NATO-B (NATOSAT-II)	DELTA	2 Feb
	ISIS-B (Canada)	DELTA	31 Mar
	SAN MARCO (C) (Italy)	SCOUT	24 Apr
	CAS/EOLE-A (France)	SCOUT	16 Aug
	BARIUM ION CLOUD (Germany)	SCOUT	20 Sep
	UK-4 (United Kingdom)	SCOUT	11 Dec
1972	*ESRO (HEOS A-2)	DELTA	31 Jan
	*ESRO (TD-1)	DELTA	12 Mar
	*TELESAT-A (ANIK-1) (Canada)	DELTA	9 Nov
	*ESRO-IV	SCOUT	21 Nov
	German A-2 (AEROS)	SCOUT	16 Dec
1973	*TELESAT B (ANIK-2) (Canada)	DELTA	20 Apr
1974	* SKYNET II A (United Kingdom)	DELTA 1/	19 Jan
	SAN MARCO C-2 (Italy)	SCOUT	18 Feb
	*UK-X4 (United Kingdom)	SCOUT	8 Mar
	*AEROS-B (Germany)	SCOUT	16 Jul
	ANS-A (Netherlands)	SCOUT	30 Aug
	UK-5/AERIEL 5 (United Kingdom)	SCOUT	15 Oct
	INTASAT (Spain-Piggyback on ITOS-G)	NA	15 Nov
	* SKYNET II-B (United Kingdom)	DELTA	22 Nov
	HELIOS-A (Germany)	TITAN III E CENTAUR	10 Dec
	*SYMPHONIE-A (France-Germany)	DELTA	18 Dec

1/ Vehicle failure *Reimbursable Launches

NASA/International Cooperative & Reimbursable Launches

(SCOUT AND LARGER VEHICLES)

YEAR	SPACECRAFT TITLE	LAUNCH VEHICLE	LAUNCH DATE (GMT)
1975	*TELESAT C (Canada)	Delta	7 May
	*COS-B (ESA)	Delta	8 Aug
	*SYMPHONIE-B (France-Germany)	Delta	26 Aug
1976	Helios-B (Germany)	T-III-Centaur	15 Jan
	CAS-CTS (Canada)	Delta	17 Jan
	*NATO III-A	Delta	22 Apr
	*Palapa-A (Indonesia)	A-Centaur	13 May
1977	*NATO III-B	Delta	27 Jan
	*Palapa-B (Indonesia)	Delta	10 Mar
	*GEOS (ESA)	Delta 1/	20 Apr
	*GMS (Japan)	Delta	14 Jul
	*SIRIO (Italy)	Delta	25 Aug
	*OTS (ESA)	Delta 1/	13 Sep
	ISEE A/B (ESA-Dual Payload)	Delta	22 Oct
	*METEOSAT (ESA)	Delta	22 Nov
	*CS (Japan)	Delta	14 Dec
1978	IUE-A (ESA)	Delta	26 Jan
	*BSE (Japan)	Delta	7 Apr.
	*OTS-B (ESA)	Delta	11 May
	*GEOS-B (ESA)	Delta	14 Jul
	ISEE-C (ESA)	Delta	12 Aug
	*NATO-III C	Delta	19 Nov
	*Telesat (Canada)	Delta	16 Dec
1979	*UK-6 (United Kingdom)	Scout	2 Jun 79
1982	*Insat 1-A (India) 2/	Delta	10 Apr 82
	*Telesat G (Canada)	Delta	26 Aug 82
	*Telesat E (Canada)	STS-5	11 Nov 82

*Reimbursable Launches 1/ Vehicle Failure 2/ Spacecraft Failure

Total Cooperatives	28
Total Reimbursables	37
Total Launches	65
Total Successful Launches	61
Total Successful Payloads	63 a/

a/ Includes 1 Dual Payload & 2 Piggybacks

Summary Of Manned Space Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
MERCURY PROGRAM				
Suborbital Flights				
Big Joe	9 Sep 59	Atlas	S	S
Little Joe-1 - Vehicle Test	4 Oct 59	Little Joe-6	S	S
Little Joe-2	4 Nov 59	Little Joe-1A	S	S
Little Joe-3	4 Dec 59	Little Joe-2	S	S
Little Joe-4	21 Jan 60	Little Joe-1B	S	S
Mercury (MA-1)	29 Jul 60	Atlas	U	U
Little Joe-5	8 Nov 60	Little Joe-5	S	U
Mercury (MR-1A)	19 Dec 60	Redstone	S	S
Mercury (MR-2)	31 Jan 61	Redstone	S	S
Mercury (MA-2)	21 Feb 61	Atlas	S	S
Little Joe-5A	18 Mar 61	Little Joe-5A	S	U
Mercury (MR-BD) - Vehicle Test	24 Mar 61	Redstone	S	S
Little Joe-5B	28 Apr 61	Little Joe-5B*	S	S
Freedom 7- (MR-3) (Manned)	5 May 61	Redstone	S	S
Liberty Bell-7 (MR-4) (Manned)	21 Jul 61	Redstone	S	S
TOTAL (Success/Attempts)			14/15	12/15
Orbital Flights				
Mercury (MA-3)	25Apr 61	Atlas	U	U
Mercury (MA-4)	13 Sep 61	Atlas	S	S
Mercury (MS-1)	1 Nov 61	(Mercury Blue Scout)	U	U
Mercury (MA-5)	29 Nov 61	Atlas	S	S
Friendship 7 (MA-6) (Manned)	20 Feb 62	Atlas	S	S
Aurora 7 (MA-7) (Manned)	24 May 62	Atlas	S	S
Sigma 7 (MA-8) (Manned)	3 Oct 62	Atlas	S	S
Faith 7 (MA-9) (Manned)	15 May 63	Atlas	S	S
TOTAL (Success/Attempts)			6/8	6/8

Summary Of Manned Space Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
GEMINI PROGRAM (Suborbital Flights)				
Gemini II	19 Jan 65	Titan II	S	S
TOTAL (Success/Attempts)			1/1	1/1
Orbital Flights				
Gemini I	8 Apr 64	Titan II	S	S
Gemini III (Manned)	23 Mar 65	Titan II	S	S
Gemini IV (Manned)	3 Jun 65	Titan II	S	S
Gemini V (Manned)	21 Aug 65	Titan II	S	S
Gemini VI	25 Oct 65	Atlas-Agena	U	U
Gemini VII (Manned)	4 Dec 65	Titan II	S	S
Gemini VI-A (Manned)	15 Dec 65	Titan II	S	S
Gemini VIII (Manned)	16 Mar 66	Atlas-Agena/Titan II	S/S	U
Gemini IX	17 May 66	Atlas-Agena	U	U
Gemini IX-A (Manned)	1 Jun/3 Jun 66	Atlas/Titan II	S/S	U
Gemini X (Manned)	18 Jul 66	Atlas-Agena/Titan II	S/S	S
Gemini XI (Manned)	12 Sep 66	Atlas-Agena/Titan II	S/S	S
Gemini XII (Manned)	11 Nov 66	Atlas-Agena/Titan II	S/S	S
TOTAL (Success/Attempts)			16/18	9/13
APOLLO PROGRAM (Suborbital Flights)				
Saturn Test (SA-1)	27 Oct 61	*Saturn I	S	S
Saturn (SA-2)	25 Apr 62	*Saturn I	S	S
Saturn (SA-3)	16 Nov 62	*Saturn I	S	S
Saturn (SA-4)	28 Mar 63	*Saturn I	S	S
Little Joe II #1	28 Aug 63	*Little Joe II	S	S
Apollo Transonic Abort	13 May 64	*Little Joe II	S	S
Apollo Max Q Abort	8 Dec 64	*Little Joe II	S	S
High Altitude Abort	19 May 65	*Little Joe II	U	U
Intermediate Altitude Abort	20 Jan 66	*Little Joe II #5	S	S
Saturn (AS-201)	26 Feb 66	*Uprated Saturn I	S	S
Saturn (AS-202)	25 Aug 66	*Uprated Saturn I	S	S
TOTAL (Success/Attempts)			10/11	10/11

*Launch Vehicle Development

Summary Of Manned Space Flight Mission Performance

By Program Activities

MISSION	LAUNCH DATE	LAUNCH VEHICLE	ASSESSMENT VEHICLE	ASSESSMENT MISSION
APOLLO PROGRAM (Cont'd)				
Orbital Flights				
Saturn (SA-5)	29 Jan 64	*Saturn I	S	S
Saturn (SA-6)	28 May 64	*Saturn I	S	S
Saturn (SA-7)	18 Sep 64	*Saturn I	S	S
Saturn (AS-203)	5 Jul 66	*Uprated Saturn I	S	S
Apollo 4 (501/017)	9 Nov 67	*Saturn V	S	S
Apollo 5 (204/LM-1)	22 Jan 68	Saturn IB	S	S
Apollo 6 (502/CSM-020/LTA-2R)	4 Apr 68	*Saturn V	U	U
Apollo 7 (205/CSM-101) (Manned)	11 Oct 68	Saturn IB	S	S
Apollo 8 (503/CSM-103/LTA-B) (Manned)	21 Dec 68	Saturn V	S	S
Apollo 9 (504/CSM-104/LM-3) (Manned)	3 Mar 69	Saturn V	S	S
Apollo 10 (505/CSM-106/LM-4) (Manned)	18 May 69	Saturn V	S	S
Apollo 11 (506/CSM-107/LM-5) (Manned)	16 Jul 69	Saturn V	S	S
Apollo 12 (507/CSM-108/LM-6) (Manned)	14 Nov 69	Saturn V	S	S
Apollo 13 (508/CSM-109/LM-7) (Manned)	11 Apr 70	Saturn V	S	U
Apollo 14 (509/CSM-110/LM-8) (Manned)	31 Jan 71	Saturn V	S	S
Apollo 15 (510/CSM-112/LM-10) (Manned)	26 Jul 71	Saturn V	S	S
Apollo 16 (511/CSM-113/LM-11) (Manned)	16 Apr 72	Saturn V	S	S
Apollo 17 (512/CSM-114/LM-12) (Manned)	7 Dec 72	Saturn V	S	S
Apollo (ASTP)	15 Jul 75	Saturn IB	S	S
TOTAL (Success/Attempts)			18/19	17/19
SKYLAB PROGRAM				
Workshop SL-1 (513/S-IVB 212)	14 May 73	Saturn V	S	S
First Manned Visit SL-2 (206/CSM-116)	25 May 73	Saturn IB	S	
Second Manned Visit SL-3 (207/CSM-117)	28 Jul 73	Saturn IB	S	S
Third Manned Visit SL-4 (208/CSM-118)	16 Nov 73	Saturn IB	S	S
TOTAL (Success/Attempts)			4/4	3/3

*Launch Vehicle Development

Summary Of Manned Space Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
SPACE TRANSPORTATION SYSTEM				
Orbital Flight Test Program				
STS-1	12 Apr 81	Columbia	S	S
STS-2	12 Nov 81	Columbia	S	S
STS-3	22 Mar 82	Columbia	S	S
STS-4	27 Jun 82	Columbia	S	S
Operational Flights				
STS-5	11 Nov 82	Columbia	S	S
TOTAL (success/attempts)			5/5	5/5

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
BIOSCIENCE - ORBITAL FLIGHTS				
Biosatellite I (A)	14 Dec 66	Thor-Delta	S	U
Biosatellite II (B)	7 Sep 67	Thor-Delta	S	S
Biosatellite III (D)	29 Jun 69	Thor-Delta	S	U
OFO-I (A)	9 Nov 70	Scout	S	S
TOTAL (Success/Attempts)			4/4	2/4
LAUNCH VEHICLE DEVELOPMENT				
Sub-Orbital Flights				
Scout X	18 Apr 60	Scout X	U	U
Scout	1 Jul 60	Scout	S	S
Scout	4 Oct 60	Scout	S	S
Centaur Test (AC-1)	8 May 62	Atlas-Centaur	U	U
Centaur (AC-3)	30 Jun 64	Atlas-Centaur	S	S
Centaur (AC-4)	11 Dec 64	Atlas-Centaur	S	S
TOTAL (Success/Attempts)			4/6	4/6
Orbital Flights				
Centaur (AC-2)	27 Nov 63	Atlas-Centaur	S	S
Centaur (AC-5)	2 Mar 65	Atlas-Centaur	U	U
Scout Evaluation Vehicle A	10 Aug 65	Scout	S	S
Centaur (AC-6)	11 Aug 65	Atlas-Centaur	S	S
Centaur (AC-8)	8 Apr 66	Atlas-Centaur	U	U
Centaur (AC-9)	26 Oct 66	Atlas-Centaur	S	S
Centaur Proof Flight	11 Feb 74	Titan III E-Centaur	U	U
TOTAL (Success/Attempts)			4/7	4/7

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
PHYSICS AND ASTRONOMY				
Geoprobes				
Explorer 10 (P-14) (Atmosphere Physics)	25 Mar 61	Thor-Delta	S	S
Probe A (P-21) (Scientific Geoprobe)	19 Oct 61	Scout	S	S
P-21a (Scientific Geoprobe)	29 Mar 62	Scout	S	S
Gravity Probe (Gravity Measurements)	18 Jul 76	Scout	S	S
TOTAL (Success/Attempts)			4/4	4/4
Orbital Flights				
Beacon 1 (Atmosphere Physics)	23 Oct 58	Jupiter C	U	U
Beacon 2 (Atmosphere Physics)	14 Aug 59	Juno II	U	U
Beacon A (S-66) (Atmosphere Physics)	19 Mar 64	Thor-Delta	U	U
TOTAL (Success/Attempts)			0/3	0/3
Vanguard II (Meteorology)	17 Feb 59	Vanguard (SLV-4)	U	U
Vanguard (Atmosphere Physics)	13 Apr 59	Vanguard (SLV-5)	U	U
Vanguard (Solar-Earth Heating)	22 Jun 59	Vanguard (SLV-6)	U	U
Vanguard III (Magnetic Fields)	18 Sep 59	Vanguard (SLV-7)	S	S
TOTAL (Success/Attempts)			1/4	1/4
Explorer (S-1) (Energetic Particles)	16 Jul 59	Juno II	U	U
Explorer 6 (S-2) (Meteorology)	7 Aug 59	Thor-Able	S	S
Explorer 7 (S-1a) (Energetic Particles)	13 Oct 59	Juno II	S	S
Explorer (S-46) (Energetic Particles)	23 Mar 60	Juno II	U	U
Explorer 8 (S-30) (Atmosphere Physics)	3 Nov 60	Juno II	S	S
Explorer (S-56) Atmosphere Physics)	4 Dec 60	Scout	U	U
Explorer 9 (S-56a) (Atmosphere Physics)	16 Feb 61	Scout	S	S
Explorer (S-45) (Atmosphere Physics)	24 Feb 61	Juno II	U	U
Explorer 11 (S-15) (Gamma-ray Astronomy)	27 Apr 61	Juno II	S	S
Explorer (S-45a) (Atmosphere Physics)	24 May 61	Juno II	U	U

Summary Of

Space Science

Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
PHYSICS AND ASTRONOMY (Cont'd)				
Orbital Flights (Cont'd)				
Explorer 12 (S-3) (Atmosphere Physics)	16 Aug 61	Thor-Delta	S	S
Explorer 14 (S-3a) (Atmosphere Physics)	2 Oct 62	Thor-Delta	S	S
Explorer 15 (S-3b) (Atmosphere Physics)	27 Oct 62	Thor-Delta	S	S
Explorer 17 (S-6) (Aeronomy)	2 Apr 63	Thor-Delta	S	S
Explorer 18 (IMP-A)	26 Nov 63	Thor-Delta	S	S
Explorer 19 (AD-A) (Atmonphere Physics)	19 Dec 63	Scout	S	S
Explorer 20 (S-48) (Atmosphere Physics)	25 Aug 64	Scout	S	S
Explorer 21 (IMP-B)	4 Oct 64	Thor-Delta	U	U
Explorer 22 (BE-B) (Geodesy)	10 Oct 64	Scout	S	S
Explorer 24 (Air Density) } Dual Mission	21 Nov 64	Scout	S	S
Explorer 25 (Injun B) } Dual Mission			-	S
Explorer 26 (S-3C) (Atmosphere Physics)	21 Dec 64	Thor-Delta	S	S
Explorer 27 (BE-C) (Geodesy)	29 Apr 65	Scout	S	S
Explorer 28 (IMP-C)	29 May 65	Thor-Delta	S	S
Explorer 29 (GEOS)	6 Nov 65	Thor-Delta	S	S
Explorer 31 (DME-A)	29 Nov 65	Thor-Delta	S	S
Explorer 32 (AE-B)	25 May 66	Thor-Delta	S	S
Explorer 33 (IMP-D)	1 Jul 66	Thor-Delta	S	S
Explorer 34 (IMP-F)	24 May 67	Thor-Delta	S	S
Explorer 35 (IMP-E)	19 Jul 67	Thor-Delta	S	S
Explorer 38 (RAE-A)	4 Jul 68	Thor-Delta	S	S
Explorer 39 (Air Density) } Dual Mission	8 Aug 68	Scout	S	S
Explorer 40 (Injun V) } Dual Mission			-	S
Explorer 41 (IMP-G)	21 Jun 69	Thor-Delta	S	S
Explorer 42 (SAS-A)	12 Dec 70	Scout	S	S
Explorer 43 (IMP-I)	13 Mar 71	Delta	S	S

Summary Of

Space Science

Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
PHYSICS AND ASTRONOMY (Cont'd)				
Orbital Flights (Cont'd)				
Explorer 45 (SSS-A)	15 Nov 71	Scout	S	S
Explorer 47 (IMP-H)	22 Sep 72	Delta	S	S
Explorer 48 (SAS-B)	15 Nov 72	Scout	S	S
Explorer 49 (RAE-B)	10 Jun 73	Delta	S	S
Explorer 50 (IMP-J)	25 Oct 73	Delta	S	S
Explorer 51 (AE-C)	16 Dec 73	Delta	S	S
Explorer 52 (Hawkeye-1)	3 Jun 74	Scout	S	S
Explorer 53 (SAS-C)	7 May 75	Scout	S	S
Explorer 54 (AE-D)	6 Oct 75	Delta	S	S
Explorer 55 (AE-E)	19 Nov 75	Delta	S	S
Explorer (DAD-A/B)	5 Dec 75	Scout	U	U
Dynamics Explorer A/B	3 Aug 81	Delta	S	S
Solar Mesosphere Explorer	6 Oct 81	Delta	S	S
OSS-1	22 Mar 82	STS-3	S	S
Monodisperse Latex Reactor (MLR)	22 Mar 82	STS-3	S	S
TOTAL (Success/Attempts)			42/49	44/51
HIGH ENERGY ASTRONOMY OBSERVATORY				
HEAO-A	12 Aug 77	A-Centaur	S	S
HEAO-B	13 Nov 78	A-Centaur	S	S
HEAO-C	20 Sep 79	A-Centaur	S	S
TOTAL (Success/Attempts)			3/3	3/3
SOLAR MAXIMUM MISSION				
SMM-A	14 Feb 80	Delta	S	S
TOTAL (Success/Attempts)			1/1	1/1

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
PHYSICS AND ASTRONOMY (Cont'd)				
Orbiting Geophysical Observatory				
OGO-I (A) (EGO)	5 Sep 64	Atlas-Agena	S	U
OGO-II (C) (POGO)	14 Oct 65	Thor-Agena	S	U
OGO-III (B) (EGO)	7 Jun 66	Atlas-Agena	S	S
OGO-IV (D) (POGO)	28 Jul 67	Thor-Agena	S	S
OGO-V (E)	4 Mar 68	Atlas-Agena	S	S
OGO-VI (F)	5 Jun 69	Thor-Agena	S	S
TOTAL (Success/Attempts)			6/6	4/6
Orbiting Solar Observatory				
OSO-1 (S-16)	7 Mar 62	Thor-Delta	S	S
OSO-2 (B-2)	3 Feb 65	Thor-Delta	S	S
OSO-C	25 Aug 65	Thor-Delta	U	U
OSO-3 (E)	8 Mar 67	Thor-Delta	S	S
OSO-4 (D)	18 Oct 67	Thor-Delta	S	S
OSO-5 (F)	22 Jan 69	Thor-Delta	S	S
OSO-6 (G)	9 Aug 69	Thor-Delta	S	S
OSO-7 (H)	29 Sep 71	Thor-Delta	S	S
OSO-8 (I)	21 Jun 75	Delta	S	S
TOTAL (Success/Attempts)			8/9	8/9
Orbiting Astronomical Observatory				
OAO-I (A)	8 Apr 66	Atlas-Agena	S	U
OAO-II (A2)	7 Dec 68	Atlas-Centaur	S	S
OAO-B	30 Nov 70	Atlas-Centaur	U	U
OAO-C	21 Aug 72	Atlas-Centaur	S	S
TOTAL (Success/Attempts)			3/4	2/4

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
LUNAR & PLANETARY				
Ranger I (P- 32)	23 Aug 61	Atlas-Agena	U	U
Ranger II (P-33)	18 Nov 61	Atlas-Agena	U	U
Ranger III (P-34)	26 Jan 62	Atlas-Agena	U	U
Ranger IV (P-35)	23 Apr 62	Atlas-Agena	S	U
Ranger V (P-36)	18 Oct 62	Atlas-Agena	S	U
Ranger VI (A)	30 Jan 64	Atlas-Agena	S	U
Ranger VII (B)	28 Jul 64	Atlas-Agena	S	S
Ranger VIII (C)	17 Feb 65	Atlas-Agena	S	S
Ranger IX (D)	21 Mar 65	Atlas-Agena	S	S
TOTAL (Success/Attempts)			6/9	8/9
Lunar Orbiter I (A)	10 Aug 66	Atlas-Agena	S	S
Lunar Orbiter II (B)	6 Nov 66	Atlas-Agena	S	S
Lunar Orbiter III (C)	5 Feb 67	Atlas-Agena	S	S
Lunar Orbiter IV (D)	4 May 67	Atlas-Agena	S	S
Lunar Orbiter V (E)	1 Aug 67	Atlas-Agena	S	S
TOTAL (Success/Attempts)			5/5	5/5
Surveyor I (A)	30 May 66	Atlas-Centaur	S	S
Surveyor II (B)	20 Sep 66	Atlas-Centaur	S	U
Surveyor III (C)	17 Apr 67	Atlas-Centaur	S	S
Surveyor IV (D)	14 Jul 67	Atlas-Centaur	S	U
Surveyor V (E)	8 Sep 67	Atlas-Centaur	S	S
Surveyor VI (F)	7 Nov 67	Atlas-Centaur	S	S
Surveyor VII (G)	7 Jan 68	Atlas-Centaur	S	S
TOTAL (Success/Attempts)			7/7	5/7

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
LUNAR AND PLANETARY				
Pioneer I (Lunar)	11 Oct 58	Thor-Able I	U	U
Pioneer II (Lunar)	8 Nov 58	Thor-Able I	U	U
Pioneer III (Lunar)	6 Dec 58	Juno-II	U	U
Pioneer IV (Lunar)	3 Mar 59	Juno-II	S	S
Pioneer (P-3) (Lunar)	26 Nov 59	Atlas-Able	U	U
*Pioneer V (P-2)	11 Mar 60	Thor-Able IV	S	S
Pioneer (P-30) (Lunar)	25 Sep 60	Atlas-Able	U	U
Pioneer (P-31) (Lunar)	15 Dec 60	Atlas-Able	U	U
*Pioneer VI (A)	16 Dec 65	TAD	S	S
*Pioneer VII (B)	17 Aug 66	Delta	S	S
*Pioneer VIII (C)	13 Dec 67	Delta	S	S
*Pioneer IX (D)	8 Nov 68	Delta	S	S
*Pioneer E	27 Aug 69	Delta	U	U
Pioneer X (F) (Jupiter Flyby)	3 Mar 72	A-Centaur	S	S
Pioneer XI (G) (Jupiter Flyby)	6 Apr 73	A-Centaur	S	S
Pioneer/Venus-A	20 May 78	A-Centaur	S	S
Pioneer/Venus-B	8 Aug 78	A-Centaur	S	S
TOTAL (Success/Attempts)			10/17	10/17

*Deep Space Probe

Summary Of Space Science Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
LUNAR AND PLANETARY				
Mariner I (P-37)(Venus Probe-Failed)	22 Jul 62	Atlas-Agena	U	U
Mariner II (P-38)(Venus Flyby)	27 Aug 62	Atlas-Agena	S	S
Mariner III (C)(Mars Probe-Failed)	5 Nov 64	Atlas-Agena	U	U
Mariner IV (D) (Mars Flyby)	28 Nov 64	Atlas-Agena	S	S
Mariner V (E) (Venus Flyby)	14 Jun 67	Atlas-Agena	S	S
Mariner VI (F) (Mars Flyby)	25 Feb 69	Atlas-Centaur	S	S
Mariner VII (G) (Mars Flyby)	27 Mar 69	Atlas-Centaur	S	S
Mariner VIII (H) (Mars Orbiter -Failed)	8 May 71	Atlas-Centaur	U	U
Mariner IX (I) (Mars Orbiter)	30 May 71	Atlas-Centaur	S	S
Mariner X (J) (Venus/Mercury Flyby)	3 Nov 73	Atlas-Centaur	S	S
TOTAL (Success/Attempts)			7/10	7/10
Viking 1 (A)(Mars Lander & Orbiter)	20 Aug 75	Titan III Centaur	S	S
Viking 2 (B)(Mars Lander & Orbiter)	9 Sep 75	Titan III Centaur	S	S
TOTAL (Success/Attempts)			2/2	2/2
Voyager 2 (Jupiter/Saturn Flyby)	20 Aug 77	Titan III Centaur	S	S
Voyager 1 (Jupiter/Saturn Flyby)	5 Sep 77	Titan III Centaur	S	S
TOTAL (Success/Attempts)			2/2	2/2

Summary Of Communications Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
COMMUNICATIONS PROGRAM				
Suborbital Flights				
Echo (AVT-1)	15 Jan 62	Thor	S	S
Echo (AVT-2)	18 Jul 62	Thor	S	S
TOTAL (Success/Attempts)			2/2	2/2
Orbital Flights				
Echo (A-10)	13 May 60	Thor-Delta	U	U
Echo I (A-11)	12 Aug 60	Thor-Delta	S	S
Echo II (A-12)	25 Jan 64	Thor-Agena	S	S
Relay I (A-15)	13 Dec 62	Thor-Delta	S	S
Relay II (A-16)	21 Jan 64	Thor-Delta	S	S
Syncom I (A-25)	14 Feb 63	Thor-Delta	S	U
Syncom II (A-26)	26 Jul 63	Thor-Delta	S	S
Syncom III (A-27)	19 Aug 64	Thor-Delta	S	S
TOTAL (Success/Attempts)			7/8	6/8
Applications Technology Satellites				
ATS-I (B)	6 Dec 66	Atlas-Agena	S	S
ATS-II (A)	6 Apr 67	Atlas-Agena	U	U
ATS-III (C)	5 Nov 67	Atlas-Agena	S	S
ATS-IV (D)	10 Aug 68	Atlas-Centaur	U	U
ATS-V (E)	12 Aug 69	Atlas-Centaur	S	U
ATS-VI (F)	30 May 74	Titan III C	S	S
TOTAL (Success/Attempts)			4/6	3/6

Summary Of Earth Observations Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
EARTH OBSERVATIONS PROGRAM				
Tiros I (A-1	1 Apr 60	Thor-Able	S	S
Tiros II (A-2)	23 Nov 60	Thor-Delta	S	S
Tiros III (A-3)	12 Jul 61	Thor-Delta	S	S
Tiros IV (A-9)	8 Feb 62	Thor-Delta	S	S
Tiros V (A-50)	19 Jun 62	Thor-Delta	S	S
Tiros VI (A-51)	18 Sep 62	Thor-Delta	S	S
Tiros VII (A-52)	19 Jun 63	Thor-Delta	S	S
Tiros VIII (A-53)	21 Dec 63	Thor-Delta	S	S
Tiros IX (I EYE)	22 Jan 65	Thor-Delta	S	S
Tiros X (OT-1)	2 Jul 65	Thor-Delta	S	S
Tiros M (ITOS-1)	23 Jan 70	Thor-Delta	S	S
Tiros N	13 Oct 78	Atlas-F	S	S
TOTAL (Success/Attempts)			12/12	12/12
Nimbus I (A)	23 Aug 64	Thor-Agena	S	S
Nimbus II (C)	15 May 66	Thor-Agena	S	S
Nimbus B	18 May 68	Thor-Agena	U	U
Nimbus III (B-2)	14 Apr 69	Thorad-Agena	S	S
Nimbus D (4)	8 Apr 70	Thor-Agena	S	S
Nimbus E (5)	11 Dec 72	Delta	S	S
Nimbus F (6)	12 Jun 75	Delta	S	S
Nimbus G (7)	24 Oct 78	Delta	S	S
TOTAL (Success/Attempts)			7/8	7/8

Summary Of Special Applications Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
EARTH OBSERVATIONS PROGRAM (Cont'd)				
ERTS-A	23 Jul 72	Delta	S	S
Landsat-B (ERTS-B)	22 Jan 75	Delta	S	S
Landsat-C	5 Mar 78	Delta	S	S
Landsat-D	16 Jul 82	Delta	S	S
TOTAL (Success/Attempts)			4/4	4/4
SMS-A	17 May 74	Delta	S	S
SMS-B	6 Feb 75	Delta	S	S
TOTAL (Success/Attempts)			2/2	2/2
SPECIAL APPLICATION PROGRAM				
PAGEOS I (A)	24 Jun 66	Thor-Agena	S	S
Explorer 36 (GEOS-II) (GEOS-B)	11 Jan 68	Thor-Agena	S	S
GEOS-3 (C)	9 Apr 75	Delta	S	S
LAGEOS-A	4 May 76	Delta	S	S
Seasat	26 Jun 78	Atlas-F	S	S
NOSL	27 Jul 82	STS-4	S	S
TOTAL (Success/Attempts)			6/6	6/6
APPLICATIONS EXPLORERS				
AEM-1 (HCMM)	26 Apr 78	Scout	S	S
AEM-2 (SAGE)	18 Feb 79	Scout	S	S
AEM-3 (MAGSAT)	30 Oct 79	Scout	S	S
TOTAL (Success/Attempts)			3/3	3/3

Summary Of Space Technology Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
SPACE TECHNOLOGY PROGRAM				
Suborbital Flights				
Reentry I (A)	1 Mar 62	Scout	S	U
Reentry II (B)	31 Aug 62	Scout	U	U
Reentry III (C)	20 Jul 63	Scout	U	U
Reentry IV (D)	18 Aug 64	Scout	S	S
Reentry V (E)	9 Feb 66	Scout	S	S
Reentry VI (F)	27 Apr 68	Scout	S	S
Fire I (Re-entry Test)	14 Apr 64	Atlas-X259	S	S
Fire II (Re-entry Test)	22 May 65	Atlas-X259	S	S
SERT-1A (Ion Engine Test)	20 Jul 64	Scout	S	S
RAM C-I (A) (Re-entry Test)	19 Oct 67	Scout	S	S
RAM C-II (B) (Re-entry Test)	22 Aug 68	Scout	S	S
RAM C-III (C) (Re-entry Test)	30 Sep 70	Scout	S	S
PAET (Re-entry Test)	20 Jun 71	Scout	S	S
TOTAL (Success/Attempts)			11/13	10/13
Orbital Flights				
Explorer (S-55) (Micrometeoroids)	30 Jun 61	Scout	U	U
Explorer 13 (S-55A) (Micrometeoroids)	25 Aug 61	Scout	U	U
Explorer 16 (S-55B) (Micrometeoroids)	16 Dec 62	Scout	S	S
Explorer 23 (S-55C) (Micrometeoroids)	6 Nov 64	Scout	S	S
Pegasus I (A) (Micrometeoroids)	16 Feb 65	Saturn I (SA-9)	S	S
Pegasus II (B) (Micrometeoroids)	25 May 65	Saturn I (SA-8)	S	S
Pegasus III (C) (Micrometeoroids)	30 Jul 65	Saturn I (SA-10)	S	S
SERT-II (Ion Engine Test)	4 Feb 70	Thor-Agena	S	U
Explorer 46 (MTS) (Micrometeoroids)	13 Aug 72	Scout	S	S
TOTAL (Success/Attempts)			7/9	6/9

Soviet Spacecraft Designations

COSMOS: Cosmos appeared as a designator in 1962 to be used for explaining many different Soviet activities in space without giving specific details.

GORIZONT: Communications Satellite

EKRAN: Television Broadcasting Satellite

ELEKTRON: Satellites launched in pairs (with apogees of 4,000 miles and 40,000 miles) to map radiation belts.

INTERCOSMOS: Scientific satellites carrying experiments from other countries which make the payloads "international."

LUNA: Unmanned payloads launched to the Moon for lunar exploration. These include lunar orbiters, lunar landers, and lunar lander return missions.

MARS: Unmanned payloads launched to explore the planet Mars.

METEOR: Earth satellites primarily for collecting and reporting world-wide meteorological (weather) data. Early weather satellites were included in the Cosmos series.

MOLNIYA: A communications satellite appearing in a highly elliptical orbit over the same portion of the Earth each day on each of its climbs to apogee, giving good coverage to the Soviet Union.

OREOL: Scientific satellite intended to study physical phenomena in upper atmosphere and for studying the nature of the polar lights. Luanched jointly with Fr ance.

POLYOT: Earth satellites incorporating onboard propulsion systems for changing orbits.

PROGNOZ: "FORECAST" - A solar irradiation and magnetosphere satellite for changing orbits.

PROGRESS: Cargo supply ship

RADIO and ISKRA: Amateur Radio Satellite

RADUGA: Geosynchronous Communications Satellite.

SALYUT: The first Earth orbiting space station for prolonged occupancy and revisitation by Cosmonauts.

SOYUZ: A manned spacecraft incorporating provisions for three Cosmonauts.

SPUTNIK: An early designation for Soviet unmanned orbiting payloads. These included scientific payloads and unmanned tests of the Vostok spacecraft.

VENUS (VENERA): Unmanned payloads launched to explore the planet Venus.

VOSKHOD: Adaptation of the Vostok capsule to accommodate two and three Cosmonauts. Vokhod I orbited three persons and Voskhod II orbited two persons performing the first manned extravehicular activity.

VOSTOK: The Soviet's first manned capsule, roughly spherical, used to place the first six Cosmonauts in Earth orbit.

ZOND: Lunar and deep space probes not otherwise designated. Includes circumlunar spacecraft.

Unofficial Tabulation Of USSR Spaceflights

	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	Total
1. Sputnik	2	1	–	3	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10
2. Luna (Lunik)	–	–	3	–	–	–	2*	–	4	5	–	1	1	2	2	1	1	2	–	1	–	–	–	–	–	–	25
3. Vostok, Voskhod	–	–	–	–	2	2	2	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8
4. Cosmos	–	–	–	–	–	12	12	27	52	34	61	64	55	72	81	72	85	74	85	101	86	96	79	88	94	97	1427
5. Venus (Venik)	–	–	–	–	–	3*	–	–	2	–	1	–	2	1	–	1	–	–	2	–	–	2	–	–	2	–	16
6. Mars	–	–	–	–	–	3*	–	–	–	–	–	–	–	–	2	–	4	–	–	–	–	–	–	–	–	–	9
7. Polyot	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
8. Electron	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
9. Zond	–	–	–	–	–	–	–	2	1	–	–	3	1	1	–	–	–	–	–	–	–	–	–	–	–	–	8
10. Molniya	–	–	–	–	–	–	–	–	2	2	3	3	2	5	3	6	8	7	10	7	6	6	5	4	8	5	92
11. Proton	–	–	–	–	–	–	–	–	2	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
12. Soyuz (Union)	–	–	–	–	–	–	–	–	–	–	1	2	5	1	2	–	2	3	4	3	3	5	4	6	3	3	47
13. Meteor	–	–	–	–	–	–	–	–	–	–	–	–	2	4	4	3	2	5	4	3	4	–	3	2	2	2	40
14. Intercosmos	–	–	–	–	–	–	–	–	–	–	–	–	2	2	1	3	2	2	2	2	1	2	2	–	2	–	23
15. No Designation	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
16. Salyut-1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	2	–	1	1	–	–	–	–	1	7
17. Oreol-1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	1	–	3
18. PROGNOZ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	1	–	1	1	1	1	–	1	–	–	8
19. Launches for Other Countries				–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	2	–	1	–	1	–	1	1	7
20. Raduga	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	2	3	1	11
21. Ekran	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	2	2	1	2	9
22. Progress	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	3	4	1	4	16
23. Radio	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	6	–	8
24. Gorizont	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	1	–	1	5
25. ISKRA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	3
Total to Date	2	1	3	3	6	20	17	35	64	44	66	74	70	88	97	89	107	95	111	121	105	120	102	110	125	119	1794

*Includes launches identified by the US but not announced by the USSR.

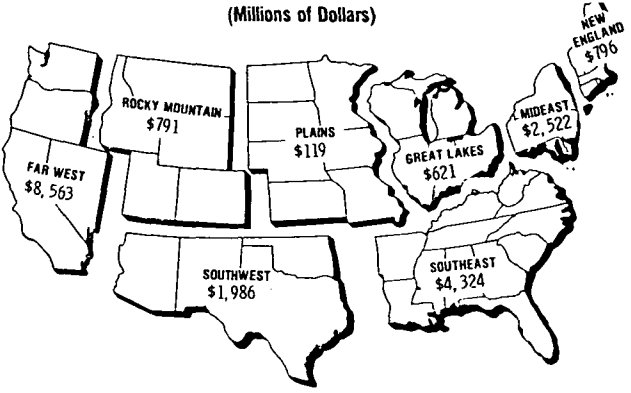
Source: Foreign Broadcasting Information Service

Section C

Funding, Manpower, & Facilities

U.S. GEOGRAPHICAL DISTRIBUTION OF NASA PRIME CONTRACT AWARDS*

TOTAL - FISCAL YEARS 1978 THROUGH 1982
(Millions of Dollars)



*Excludes smaller procurements, generally those of less than $10,000; also excludes awards placed through other Government agencies, awards outside the U.S., and actions on the JPL contracts.

NASA CONTRACT AWARDS BY STATE (FY 82)

STATE	PRIME CONTRACT AWARDS TO STATE AMOUNT	% OF TOTAL
TOTAL	$4,900,143	100.0
Alabama	106,352	2.2
Alaska	2,160	*
Arizona	30,213	0.6
Arkansas	512	*
California	2,056,491	42.0
Colorado	75,959	1.6
Connecticut	120,458	2.5
Delaware	4,461	0.1
District of Columbia	23,850	0.5
Florida	633,552	12.9
Georgia	7,844	0.2
Hawaii	4,467	0.1
Idaho	225	*
Illinois	11,217	0.2
Indiana	23,741	0.5
Iowa	3,920	0.1
Kansas	4,443	0.1
Kentucky	1,013	*
Louisiana	265,367	5.4
Maine	287	*
Maryland	360,077	7.3
Massachusetts	52,842	1.1
Michigan	15,549	0.3
Minnesota	8,186	0.2
Mississippi	33,393	0.7
Missouri	5,469	0.1
Montana	102	*
Nebraska	261	*
Nevada	1,389	*
New Hampshire	3,357	0.1
New Jersey	37,432	0.8
New Mexico	23,504	0.5
New York	50,063	1.0
North Carolina	4,786	0.1
North Dakota	10	*
Ohio	71,587	1.5
Oklahoma	2,086	*
Oregon	3,268	0.1
Pennsylvania	112,506	2.3
Rhode Island	1,315	*
South Carolina	204	*
South Dakota	194	*
Tennessee	6,953	0.1
Texas	448,117	9.1
Utah	124,016	2.5
Vermont	388	*
Virginia	127,904	2.6
Washington	22,910	0.5
West Virginia	9	*
Wisconsin	5,409	0.1
Wyoming	325	*

*Less than .05 percent.

Financial Summary

(In Millions of Dollars) As of 30 Sep 82

FISCAL YEAR	TOTAL APPROPRIATIONS	TOTAL DIRECT OBLIGATIONS	OUTLAYS			
			TOTAL	RESEARCH AND DEVELOPMENT (R&D)	CONSTRUCTION OF FACILITIES (CoF)	RESEARCH AND PROG. MGMT. (R&PM)
1959	330.9	298.7	145.5	34.0	24.8	86.7
1960	523.6	486.9	401.0	255.7	54.3	91.0
1961	966.7	908.3	744.3	487.0	98.2	159.1
1962	1,825.3	1,691.7	1,257.0	935.6	114.3	207.1
1963	3,674.1	3,448.4	2,552.4	2,308.4	225.3	18.7
1964	5,100.0	4,864.8	4,171.0	3,317.4	437.7	415.9
1965	5,250.0	5,500.7	5,092.9	3,984.5	530.9	577.5
1966	5,175.0	5,350.5	5,933.0	4,741.1	572.5	619.4
1967	4,968.0	5,011.7	5,425.7	4,487.2	288.6	649.9
1968	4,588.9	4,520.4	4,723.7	3,946.1	126.1	651.5
1969	3,995.3	4,045.2	4,251.7	3,530.2	65.3	656.2
1970	3,749.2	3,858.9	3,753.1	2,991.6	54.3	707.2
1971	3,312.6	3,324.0	3,381.9	2,630.4	43.7	707.8
1972	3,310.1	3,228.6	3,422.9	2,623.2	50.3	749.4
1973	3,407.6	3,154.0	3,315.2	2,541.4	44.7	729.1
1974	3,039.7	3,122.4	3,256.2	2,421.6	75.1	759.5
1975	3,231.2	3,265.9	3,266.5	2,420.4	85.3	760.8
1976	3,551.8	3,604.8	3,669.0	2,748.8	120.9	799.3
TQ	932.2	918.8	951.4	730.7	25.8	194.9
1977	3,819.1	3,858.1	3,945.3	2,980.7	105.0	859.6
1978	4,063.7	4,000.3	3,983.1	2,988.7	124.2	870.2
1979	4,561.2	4,557.5	4,196.5	3,138.8	132.7	925.0
1980	5,243.4	5,098.1	4,851.6	3,701.4	140.3	1,009.9
1981	5,522.7	5,606.2	5,421.2	4,223.0	146.8	1,051.4
1982	6,020.0	5,946.7	6,035.4	4,796.4	109.0	1,130.0

R&D Funding By Program

(In Millions of Dollars) As of 30 Sep 82

	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OFFICE OF SPACE FLIGHT						
Space Shuttle	2,113.2	1,994.7	1,870.3	1,637.6	1,348.8	4,600.3
Space Flight Operations	902.1	676.2	446.6	299.7	263.8	3,950.2
STS Oper Capability Dev	(201.5)	(223.5)	(112.9)	(89.9)	(65.4)	(65.4)
Development Test & Mission Spt	(182.8)	(183.5)	(172.6)	(177.2)	(171.9)	(1,050.7)
Advanced Programs	(9.7)	(8.8)	(13.0)	(7.0)	(10.0)	(188.9)
STS Operations	(508.1)	(260.4)	(148.1)	(25.6)	(16.5)	(--)
Skylab	(--)	(--)	(--)	(--)	(--)	(2,428.3)
Apollo Soyuz Test Project	(--)	(--)	(--)	(--)	(--)	(216.9)
Expendable Launch Vehicles	31.1	54.4	67.4	73.6	136.5	2,297.4
Completed Programs						22,023.5
Apollo						(20,446.7)
Gemini						(1,281.0)
Others						(295.8)
TOTAL	3,046.4	2,725.3	2,384.3	2,010.9	1,749.1	32,871.4

R&D Funding By Program

(In Millions of Dollars) As of 30 Sep 82	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OSSA						
Current Programs						
Physics & Astronomy	318.2	320.0	335.6	281.8	223.1	2,193.0
Planetary Exploration	205.0	174.1	219.4	181.9	146.7	3,551.7
Life Sciences	39.5	42.2	43.8	40.1	33.3	145.8
Space Applications	325.0	325.7	328.5	271.9	232.1	2,095.1
Prior Programs						
Manned Space Science	--	--	--	--	--	46.4
Launch Vehicle Dev	--	--	--	--	--	614.4
Bioscience	--	--	--	--	--	257.8
Space Flight Operations	--	--	--	--	4.0	58.3
Payload & Planning & Prog Integ	--	--	--	--	(4.0)	(58.3)
TOTAL	887.7	862.0	927.3	775.7	639.2	8,962.5
OSTDS						
Tracking & Data Acquisition	401.3	339.8	332.1	299.9	276.3	3,854.2
OCE						
Standards & Practices	3.0	2.1	3.8	9.0	9.0	24.2
OER						
Tech. Utilization	8.0	8.8	12.0	9.1	9.1	73.4

R&D Funding By Program

(In Millions of Dollars) As of 30 Sep 82

	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OAST						
Current Programs						
Space Research & Tech.	106.9	107.8	111.8	98.3	88.7	431.9
Aeronautical Research & Tech	261.1	268.8	308.3	264.1	228.0	998.3
Energy Tech. Applications		1.9	3.0	5.0	7.5	20.8
Prior Programs	—					
Apollo Applications Expr.	—	—	--	--	--	1.0
Chemical & Solar Power	—	—	--	--	--	62.3
Basic Research	—	—	--	--	--	193.6
Space Vehicle Systems	—	—	--	--	--	332.4
Electronic Systems	—	—	--	--	--	272.0
Human Factor Systems	—	—	--	--	--	151.4
Space Power & Elec. Prop. Sys	—	—	--	--	--	385.5
Nuclear Rockets	—	—	--	--	--	512.9
Chemical Propulsion	—	—	--	--	--	451.4
Aeronautical Vehicles	—	—	--	--	--	451.5
Nuclear Power & Propulsion	—	—	—	--	--	44.2
Mission Analysis	—	—	--	--	--	16.0
TOTAL OAST	368.0	378.5	423.1	367.4	324.2	4,239.1
OPERATING ACCOUNT	23.6	17.8	5.5	5.2	4.7	67.1
UNIVERSITY AFFAIRS	—	—	--	--	--	229.2
TOTAL PROGRAM	4,738.0	4,334.3 a/	4,088.1 b/	3,477.2 c/	3,011.6 d/	50,321.1
Approp. Trans. & Adjustment	+2.9	+2.0	+3.0	--	+1.4	298.1
Appropriation	4,740.9	4,336.3 a/	4,091.1 b/	3,477.2 c/	3,013.0 d/	50,619.2

a/ Includes .6 unobligated balance which lapsed 9-30-82.
b/ Includes .1 unobligated balance which lapsed 9-30-81.
c/ Includes .3 unobligated balance which lapsed 9-30-80.
d/ Includes .3 unobligated balance which lapsed 9-30-79.

R&D Funding By Location

(In Millions of Dollars)

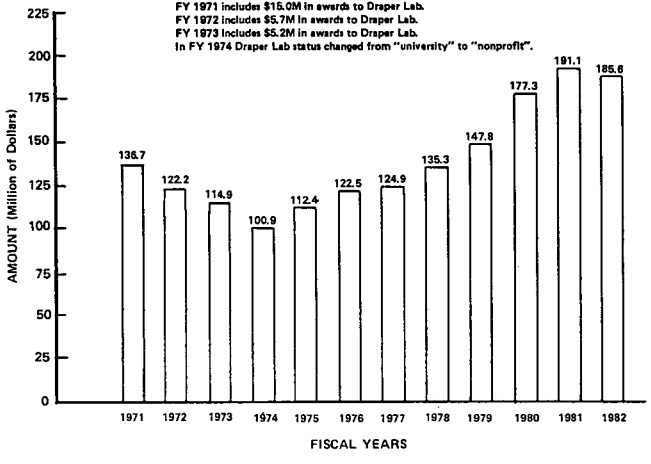
As of 30 Sep 82

INSTALLATION	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
NASA Headquarters	153.3	136.0	132.5	115.3	95.0	2,242.4
Ames Research Center	149.0	141.0	147.5	140.4	115.5	1,176.3
Electronics Research Center	—	—	—	--	--	82.5
Dryden Flight Research Facility	23.6	18.4	16.6	13.1	18.6	242.7
Goddard Space Flight Center	735.2	567.6	552.0	516.8	492.9	6,411.8
Jet Propulsion Laboratory	293.2	262.8	320.5	236.8	201.4	3,018.0
Kennedy Space Center	414.5	365.4	300.6	234.9	170.0	2,514.5
Langley Research Center	129.3	143.3	168.2	138.2	157.1	2,321.1
Lewis Research Center	171.5	163.3	170.4	148.5	133.6	2,851.9
Johnson Space Center	1,522.1	1,524.6	1,398.3	1,161.8	970.7	15,427.4
Marshall Space Flight Center	1,214.5	1,005.9	888.2	785.2	630.9	13,293.8
Space Nuclear Systems Office	—	—	—	--	--	436.2
Wallops Flight Center	—	11.2	15.7	15.8	15.9	156.3
Western Support Office	—	—	—	--	--	119.7
National Space Technology Labs.	8.9	8.8	9.3	9.2	10.0	21.5
NaPO	—	—	—	--	--	4.7
PLOO	—	—	—	--	--	.3
Station 17	198.7	-14.0	-31.7	-38.8	--	—
Undistributed	121.6	—	—	--	--	.1
TOTAL PROGRAM	4,738.0	4,334.3a/	4,088.1 b/	3,477.2 c/	3,011.6 d/	50,321.1
Appropriations Transfer & Adjustments	+2.9	+2.0	+3.0	—	+1.4	298.1
Appropriation & Availability Total	4,740.9	4,336.3 a/	4,091.1 b/	3,477.2 c/	3,013.0 d/	50,619.2

a/ Includes .6 unobligated balance which lapsed 9-30-82.
b/ Includes .1 unobligated balance which lapsed 9-30-81.
c/ Includes .3 unobligated balance which lapsed 9-30-80.
d/ Includes .3 unobligated balance which lapsed 9-30-79.

NASA OBLIGATIONS TO UNIVERSITIES

FISCAL YEARS 1971 - 1982



NOTE: Excludes awards to California Institute of Technology for operation of the Jet Propulsion Laboratory.

Source: NASA University Affairs Office

Construction Of Facilities

(In Millions of Dollars) — As of 30 Sep 82

INSTALLATION	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977	1976/TQ	FY 1975	FY 1974	FY 1973	FY 1972	FY 1971
Ames Research Center	18.5	13.9	2.9	9.3	--	4.5	2.7	3.7	--	3.2	6.5	1.1
Electronics Research Center	--	--	--	--	--	--	--	--	--	--	--	--
Dryden Flight Research Center	--	--	--	--	.4	.8	--	--	--	--	--	--
Goddard Space Flight Center	1.0	--	--	5.6	4.5	--	--	1.9	1.4	.6	.7	1.4
Jet Propulsion Laboratory	--	3.5	--	4.6	3.1	--	--	9.2	1.3	.5	--	1.9
Kennedy Space Center	1.7	.8	5.1	--	1.7	2.8	--	--	--	10.0	15.6	.3
Langley Research Center	2.9	21.8	7.9	5.8	1.7	6.1	1.6	3.2	4.0	4.3	--	.6
Lewis Research Center	1.2	9.3	5.7	6.0	.8	2.9	--	3.7	--	9.7	.8	.7
Johnson Space Center	.7	--	--	--	2.2	2.2	--	.7	--	.6	--	1.1
Marshall Space Flight Center	--	4.6	6.6	--	--	--	--	3.8	--	--	--	1.3
Michoud Assembly Facility	--	--	--	--	--	--	--	--	--	--	--	--
National Space Technologies Lab	--	--	--	--	.6	--	--	--	--	--	--	--
Nuclear Rocket Dev. Station	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Launch Operations	--	--	--	--	--	--	--	--	--	--	--	--
Wallops Flight Center	--	--	1.1	--	--	--	1.0	1.1	.8	.6	--	--
Large Aeronautical Facilities	--	--	45.9	56.1	37.0	31.0	--	--	--	--	--	--
Various Locations	9.8	3.3	1.8	--	1.4	--	--	7.7	3.7	--	.7	22.5
Space Shuttle Facilities	20.1	10.1	28.4	31.1	64.9	30.7	46.7	77.4	56.8	27.9	18.5	--
Space Shuttle Payload Facilities	--	1.6	4.4	--	7.5	4.4	--	--	--	--	--	--
Repair	12.8	15.0	12.0	--	--	--	--	--	--	--	--	--
Rehabilitation & Modification*	17.7	19.0	19.8	14.1	18.9	17.8	23.0	14.8	14.8	11.6	7.9	(17.6)
Minor Construction	2.3	4.0	3.5	4.2	5.9	2.9	6.2	4.5	4.5	1.7	--	--
Facility Planning & Design	10.0	10.0	13.9	10.6	11.6	12.6	12.4	10.8	13.5	7.8	3.5	5.5
Unallocated Planning & Design	--	--	--	--	--	--	2.9	--	--	--	--	2.4
TOTAL PLAN	98.7	116.9	158.9	147.4	162.3	118.7	96.5	142.5	100.8	78.5	54.2	36.4
Approp. Trans. & Adj.	-2.9	-1.9	-2.8	+.1	-1.3	-.6	-3.6	-2.3	+.3	-1.2	-1.5	-11.4
Approp. & Availability	95.8	115.0	156.1	147.5	160.9	118.1	92.9	140.2	101.1	77.3	52.7	25.0

*Included in Various Locations Prior to FY 1972

Construction Of Facilities

As of 30 Sep 82

(In Millions of Dollars)

INSTALLATION	FY 1970	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
Ames Research Center	.3	.4	4.2	--	2.8	5.8	11.3	14.3	6.3	.6	6.1	3.8
Electronics Research Center	--	--	--	7.4	5.2	10.4	1.6	--	--	--	--	--
Dryden Flight Research Ctr.	.9	--	--	--	--	--	2.5	1.8	--	--	1.8	--
Goddard Space Flight Center	.7	--	.6	.7	2.4	2.3	17.7	21.3	11.5	9.4	14.0	3.9
Jet Propulsion Laboratory	--	--	3.1	.3	.9	3.6	3.0	11.4	3.6	8.6	7.7	--
Kennedy Space Center	10.5	7.4	20.4	34.6	7.2	87.8	273.4	332.8	115.6	27.8	4.0	--
Langley Research Center	5.6	--	--	6.4	8.4	3.3	9.7	9.8	6.9	12.3	4.5	10.8
Lewis Research Center	.3	--	2.1	16.2	.9	.8	20.4	45.5	1.1	9.6	6.6	8.0
Johnson Space Center	--	1.0	.6	11.8	4.0	17.3	33.9	24.5	--	--	--	--
Marshall Space Flight Center	--	--	.9	--	1.8	12.0	28.2	40.5	30.7	26.1	--	--
Michoud Assembly Facility	--	.4	.5	.5	.3	6.2	7.3	28.5	--	--	--	--
National Space Tech Lab	1.4	--	--	--	--	58.4	102.9	77.1	--	--	--	--
Nuclear Rocket Dev. Station	--	--	--	--	--	--	4.1	11.5	--	--	--	--
Pacific Launch Ops. Office	--	--	--	--	--	.3	--	--	.6	.4	1.1	--
Wallops Flight Center	.4	.5	.7	.2	1.0	1.7	.5	4.1	11.3	2.0	--	16.1
Various Locations	26.4	20.9	3.5	6.5	15.1	28.3	187.8	129.9	159.0	28.0	52.4	5.1
Facility Planning & Design	3.5	.9	5.4	5.5	5.0	8.8	10.4	12.9	9.8	--	--	--
Other	--	--	--	--	--	--	23.7	--	--	--	--	--
TOTAL PROGRAM PLAN	50.0	31.5	42.0	90.1	55.0	247.0	738.4	765.9	356.4	124.8	98.2	47.7
Appro. Trans. & Adj.	+3.2	-9.7	-6.1	-7.1	+5.0	+15.9	-58.4	+10.3	- 40.4	- 2.0	-13.6	+ .3
Appro. & Availability	53.2	21.8	35.9	83.0	60.0	262.9	680.0	776.2	316.0	122.8	84.6	48.0

(In Millions of Dollars) As of 30 Sep 82

INSTALLATION	FY 1982	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977	76 & TQ	FY 1975	FY 1974	FY 1973	FY 1972	FY 1971	FY 1970
NASA Headquarters 1/	109.8	96.4	89.5	84.5	81.1	78.7	88.5	68.9	63.0	61.6	61.6	64.9	63.2
Ames Research Center	76.6	72.2	67.4	62.7	57.8	53.0	64.2	48.6	46.4	42.4	42.2	40.6	37.6
Electronics Research Center	--	--	--	--	--	--	--	--	--	--	--	--	19.1 3/
Dryden Flight Research Center	24.4	22.6	20.4	19.1	18.2	17.3	19.8	13.2	12.2	11.6	11.7	11.1	10.3
Goddard Space Flight Center	169.1	142.5	133.5	127.9	123.9	114.5	137.2	104.8	97.5	95.7	96.5	93.1	86.4
Kennedy Space Center	156.0	150.2	133.2	123.3	113.8	109.7	128.4	95.9	93.6	91.1	92.6	98.3	97.6
Langley Research Center	126.6	120.8	114.0	106.6	102.0	95.2	117.3	88.6	83.8	78.6	80.2	75.3	69.8
Lewis Research Center	106.4	99.9	94.8	87.5	84.9	83.6	102.9	80.3	79.8	81.2	82.5	78.0	73.9
Johnson Space Center	235.5	176.0	164.1	152.9	146.7	138.9	166.3	121.3	118.0	110.6	113.0	111.1	106.6
Marshall Space Flight Center	172.1	165.0	155.9	149.0	143.4	138.5	167.5	129.1	136.6	137.2	138.9	145.1	125.7
National Space Tech Lab	6.6	5.5	4.9	4.5	2.7	1.8	2.3	1.6	1.6	--	--	--	--
Pacific Launch Operations	--	--	--	--	--	--	--	--	--	--	--	--	--
Space Nuclear Systems Office	--	--	--	--	--	--	--	--	--	1.1	2.2	2.4	2.3
Western Support Office	--	--	--	--	--	--	--	--	--	--	--	--	--
Wallops Flight Center	--	20.0	17.7	15.8	15.0	13.2	17.1	12.4	11.5	10.7	10.9	10.3	9.7
TOTAL PROGRAM PLAN	1,183.1	1,071.1	996.0	933.8	889.5	844.4	1,012.5	764.7	744.0	721.8	732.3	730.2 2/	702.2
Unobligated Balance Lapsing	.2	.3	.2	.3	.3	.2	.6	.2	.6	7.6	.3	.2	.4
Appro. Transfers, Net	--	--	--	--	--	--	--	- 4.9	--	--	+ 2.1	- 7.7	- 12.6
Appropriation Total	1,183.3	1,071.4	996.2	934.1	889.8	844.6	1,013.1	760.0	744.6	729.4	734.7	722.7	690.0

1/ Includes NaPO
2/ Includes $10 million for basic institutional and other requirements for agencies resident at MTF/Slidell.
3/ ERC was closed on June 30, 1970.

(In Millions of Dollars)

As of 30 Sep 82

INSTALLATION	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
NASA Headquarters 1/	60.8	57.1	57.4	54.4	69.3	47.1	51.3	26.0	13.9	8.5	5.7
Ames Research Center	34.0	33.8	33.8	33.2	31.8	29.9	25.6	22.9	19.9	17.8	16.3
Electronics Research Center	17.2	15.4	12.2	6.4	3.2	.5	--	--	--	--	--
Dryden Flight Research Center	9.7	9.5	9.5	9.4	10.5	9.4	7.5	7.2	5.1	4.3	3.3
Goddard Space Flight Center	73.2	68.3	71.1	64.4	93.3	61.9	52.8	39.1	20.4	15.5	1.8
Kennedy Space Center	95.8	93.1	92.7	82.0	40.8	29.8	18.8	6.4	--	--	--
Langley Research Center	63.0	62.2	64.3	63.5	59.0	52.1	51.8	46.6	39.1	33.0	31.4
Lewis Research Center	67.9	66.2	66.3	66.4	69.3	61.5	53.4	45.2	35.8	31.2	27.8
Johnson Space Center	98.9	95.7	95.7	86.5	88.7	64.7	51.0	24.1	9.2	--	--
Marshall Space Flight Center	116.3	126.2	128.7	128.4	138.7	124.3	112.6	89.2	68.6	5.1	--
Pacific Launch Operations	--	--	--	.6	.9	.9	.6	.1	--	--	--
Space Nuclear Systems Office	2.1	2.0	2.0	1.8	1.7	1.5	1.0	.3	--	--	--
Western Support Office	--	1.0	3.2	4.9	5.0	4.4	3.4	1.4	5.7	.5	--
Wallops Flight Center	9.1	8.8	9.7	9.3	11.1	8.8	8.9	7.1	5.0	2.7	1.3
TOTAL PROGRAM PLAN	648.0	639.3	646.6	611.2	623.3	496.8	438.7	315.6	222.7	118.6	87.6
Unobligated Balance Lapsing	.1	.1	.9	.6							
Appro. Transfers, Net	- 44.9	- 11.4	- 7.5	- 27.8	+ .2	- 2.8					
Appropriation Total	603.2	628.0	640.0	584.0	623.5	494.0					

1/ Includes NaPO

Personnel Summary

Onboard At End Of Fiscal Year*

As of 30 Sep 82

INSTALLATION	FY 82	FY 81	FY 80	FY 79	FY 78	FY 77	FY 76	FY 75	FY 74	FY 73	FY 72	FY 71	FY 70
NASA Headquarters	1,614	1,638	1,658	1,534	1,606	1,619	1,708	1,673	1,734	1,747	1,755	1,894	2,187
Ames Research Center 1/	2,164	1,652	1,713	1,713	1,691	1,645	1,724	1,754	1,776	1,740	1,844	1,968	2,033
Dryden Flight Research Center	--	491	499	498	514	546	566	544	531	509	539	579	583
Goddard Space Flight Center 2/	3,746	3,431	3,535	3,562	3,641	3,666	3,808	3,871	3,936	3,852	4,178	4,459	4,487
Kennedy Space Center	2,199	2,224	2,291	2,264	2,234	2,270	2,404	2,377	2,408	2,516	2,568	2,704	2,895
Langley Research Center	2,916	3,028	3,094	3,125	3,167	3,207	3,407	3,472	3,504	3,389	3,592	3,830	3,970
Lewis Research Center	2,667	2,782	2,901	2,907	2,964	3,061	3,168	3,181	3,172	3,368	3,866	4,083	4,240
Johnson Space Center	3,445	3,498	3,616	3,563	3,617	3,640	3,796	3,877	3,886	3,896	3,935	4,298	4,539
Marshall Space Flight Center	3,440	3,479	3,646	3,677	3,808	4,014	4,336	4,337	4,574	5,287	5,555	6,060	6,325
Space Nuclear Systems Office	--	--	--	--	--	--	-	-	-	-	45	89	103
NASA Pasadena Office (NaPO)	--	--	--	--	--	-	-	35	39	39	40	44	72
Wallops Flight Center	--	400	406	409	429	426	437	441	447	434	465	497	522
National Space Technology Lab	119	113	111	108	108	94	72	76	-	-	-	-	-
NASA TOTAL	22,310	22,736	23,470	23,360	23,779	24,188	25,426	25,638	26,007	26,777	28,382	30,506	32,548

*Includes Temporary Personnel
Excludes employees in the youth programs.

1/ Includes DFRC
2/ Includes WFC

Personnel Summary

Onboard At End Of Fiscal Year*

INSTALLATION	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
NASA Headquarters	2,293	2,310	2,373	2,336	2,135	2,158	2,001	1,477	735	587	492
Ames Research Center	2,117	2,197	2,264	2,310	2,270	2,204	2,116	1,658	1,471	1,421	1,464
Electronics Res. Center	951	950	791	555	250	33[b]	25[b]	---	---	---	---
Dryden Flt Research Ctr	601	622	642	662	669	619	616	538	447	408	340
Goddard Sp. Flt. Cen.	4,295	4,073	3,997	3,958	3,774	3,675	3,487	2,755	1,599	1,255	398
Kennedy Space Center	3,058	3,044	2,867	2,669	2,464	1,625	1,181	339	---	---	---
Langley Research Cen.	4,087	4,219	4,405	4,485	4,371	4,330	4,220	3,894	3,338	3,203	3,624
Lewis Research Center	4,399	4,583	4,956	5,047	4,897	4,859	4,697	3,800	2,773	2,722	2,809
Johnson Space Center	4,751	4,956	5,064	4,889	4,413	4,277	3,345	1,786	794	in GSFC	---
Marshall Sp. Flt. Center	6,639	6,935	7,602	7,740	7,719	7,679	7,332	6,843	5,948	370	---
Pacific Launch Ops.	---	---	---	[d]	21	22	17	---	---	---	---
Space Nuclear Sys. Ofc.	104	108	113	115	116	112	96	39	4	---	---
Western Support Ofc.	---	[c]	119	294	377	376	308	136	60	37	---
NASA Pasadena Ofc.	80	79	91	85	19	[a]	---	---	---	---	---
Wallops Station	554	565	576	563	554	530	493	421	302	229	171
NASA TOTAL	33,929	34,641	35,860	35,708	34,049	32,499	29,934	23,686	17,471	10,232	9,235

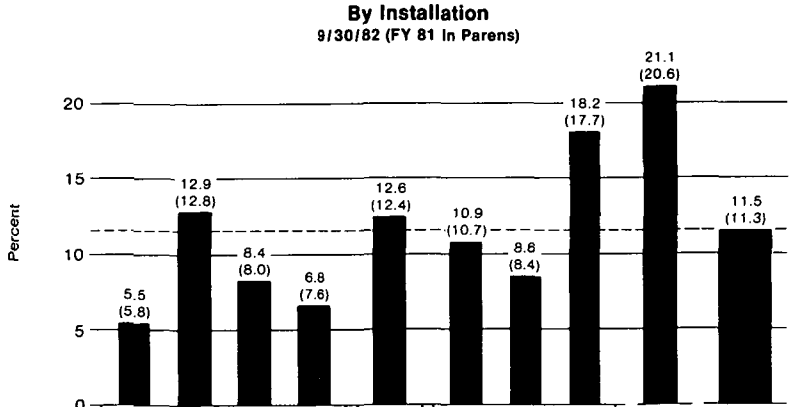
[a] Prior years figures included in WSO. * Includes Temporary Personnel

[b] Figures for North Eastern Office.

[c] Effective in 1968 WSO was disestablished and elements merged with NaPO

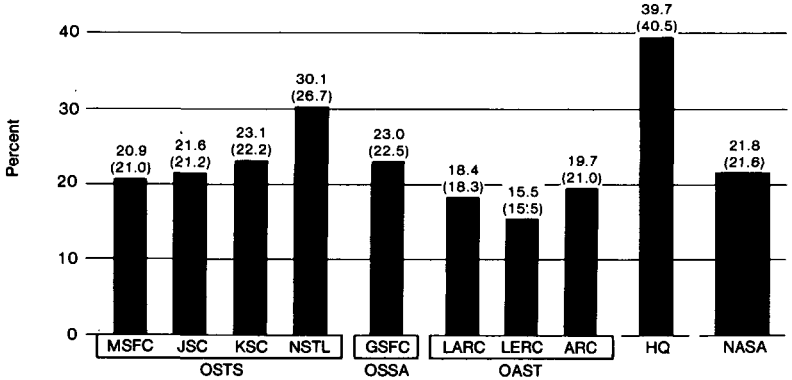
[d] Effective in 1966 PLOO activity was merged under KSC.

Minorities as Percent of Permanent Employees



Total Minorities:										
1982	183	420	177	7	455	305	213	372	301	2,433
1981	198	431	171	8	410	311	227	284	317	2,472

Women as Percent of Permanent Employees



Total Women:										
1982	695	705	486	31	834	515	384	402	568	4,620
1981	710	717	474	28	821	531	417	404	609	4,711

GLOSSARY

AD	Atmosphere Dynamics
AE	Atmosphere Explorer
AEM	Applications Explorer Mission
Apollo	Three-man Spacecraft
ATS	Applications Technology Satellite
BSE	Broadcasting Satellite Experimental
COS	Cosmic Ray Satellite
CRL	Cambridge Research Lab
CS	Communications Satellite
CTS	Communications Test Satellite
DE	Dynamic Explorer
ERTS	Earth Resources Technology Satellite
ESA	European Space Agency
ESRO	European Space Research Organization
ESSA	Environmental Science Services Agency
Gemini	Two-man Spacecraft
GEOS	Geodetic Earth Observations Satellite
GMS	Geostationary Meteorological Satellite
GOES	Geostationary Operational Environmental Satellite
HCMM	Heat Capacity Mapping Mission
HEAO	High Energy Astronomy Observatory
IMP	Interplantary Monitoring Platform
IRAS	Infrared Astronomical Satellite
ISEE	International Sun-Earth Explorer
ITOS	Improved Tiros Operational Satellite
IUE	International Ultraviolet Explorer
Landsat	Earth Resources Satellite
MAGSAT	Magnetic Satellite
Mercury	One-man Spacecraft
Nimbus	Meteorological Satellite
NOAA	National Oceanic & Atmospheric Agency
OT	Operational Tiros
OTS	Orbiting Test Satellite
RAE	Radio Explorer
Ranger	Lunar Probe Spacecraft
RFD	Re-entry Flight Demonstration
SAGE	Stratospheric Aerosol Gas Experiment
SAS	Small Astronomy Satellite
SBS	Satellite Business Systems
SCATHA	Spacecraft Charging at High Altitudes
Seasat	Ocean Research Satellite
SME	Solar Mesosphere Explorer
SMM	Solar Maximum Mission
SMS	Synchronous Meteorological Satellite
Surveyor	Lunar Soft Landing Spacecraft
Syncom	Synchronous Communications Satellite
Tiros	Television Infrared Observation Satellite
TOS	Tiros Operational Satellite

National Aeronautics and
Space Administration